

PROCEDURES FOR REGIONAL CLEARINGHOUSE REVIEW OF ENVIRONMENTAL IMPACT STATEMENTS

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PREFACE

The primary objective of this study was to develop a procedure that ABAG, as a regional clearinghouse organization, can use to review environmental impact statements as specified by the National Environmental Policy Act of 1969 and the California Environmental Quality Act of 1970. The procedure developed was designed to fit ABAG's role as a regional clearinghouse. However, the methodology could be used by other agencies that review or prepare impact statements.

This study does not attempt to present a state-of-the-art analysis of environmental impact assessment, nor does it present a comprehensive analysis on interpretation and application of the National Environmental Policy Act, the California Environmental Quality Act, their subsequent guidelines, and court decisions to the process of environmental impact statement preparation and review. A book length report would be required to adequately discuss and analyze these topics.

The text of this study is intended to place the recommended review procedure in context with the problems and process a regional clearinghouse will encounter in dealing with environmental impact statements.

The text is organized into six sections. The introduction and section 2 describe the background of the environmental impact statement process - the legislative acts, subsequent agency guidelines and judicial interpretations. Section three outlines the role of an impact statement reviewer - with particular reference to the participation of a regional clearinghouse.

The fourth section discusses environmental impact assessment, first on a conceptual basis, and then in terms of a regional clearinghouse review. Description of the recommended review procedure is the content of the fifth section. Recommendations for effectuating the implementation of the review procedure are contained in section six. Appendices A and B are working examples of the review procedure recommended.

Effective implementation of the review procedure recommended will require that impact statement review be considered as an integral component of the regional clearinghouse's planning program and not as an isolated exercise responding only to the statements submitted.

It should be kept very clear that the intent of both NEPA and CEQA is (1) to include environmental information in the decision making process and (2) to make full disclosure of the rationale used in arriving at decisions having a significant impact on the environment.

The preparation and review of impact statements should be looked at as the vehicle for achieving these purposes and not as an end in itself. The difficulties that are presently being experienced by agencies preparing and reviewing impact statements can be largely attributed to the radical change in the way agencies must perceive their own missions and responsibilities with respect to the environment. Once this transition in perspective is achieved and environmental values are systematically included throughout the decision making process, the preparation and review of Environmental Impact Statements should become a relatively expeditious and efficient process.

INTRODUCTION

ENVIRONMENTAL QUALITY - THE ENABLING LEGISLATION

The first environmental quality legislation was passed in 1881 when the cities of Chicago, Illinois and Cincinnati, Ohio enacted smoke control laws.(31)*

Since this initial legislative effort, numerous federal, state and local statutes have been enacted in response to a wide range of similar environmental "problems" such as air pollution, water pollution and lack of scenic preservation.

But the effort was fragmented and piecemeal, and nearly a century passed before Congress, through the National Environmental Policy Act of 1969,** established a comprehensive national policy for the environment. The act's stated purposes were "to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the nation; and to establish a Council on Environmental Quality."(31)

Title I, Section 102, of this act authorizes and directs all agencies of the federal government to:

- (A) utilize a systematic, interdisciplinary approach which will insure the integrated

*References listed by number in bibliography.

** Hereafter abbreviated as - NEPA

use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment;

- (B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by Title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making, along with economic and technical considerations;
- (C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on:
 - (i) the environmental impact of the proposed action,
 - (ii) any adverse environmental effects which cannot be avoided should the the proposal be implemented,
 - (iii) alternatives to the proposed action,
 - (iv) the relationship between local short term uses of man's environment and the maintenance and enhancement of long term productivity, and,
 - (v) any irreversible and irretrievable committments of resources which would be involved in the proposed action should it be implemented.

It further states that:

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved.⁽⁴⁾

Since Part C of Section 102 contains the specific legislative directive requiring the preparation of an Environmental Impact Statement, the provisions stated here have become central to the definition of governmental responsibilities in environmental quality issues.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

In September of 1970, the State of California passed into law its own environmental policy act entitled the California Environmental Quality Act of 1970 (CEQA).^{*} The stated purpose of the Act is "to provide relevant environmental information to the legislature and executive agencies, departments, boards, commissions and the general public concerning proposed projects at the time when the major policy decisions (siting, land purchase, design, construction) are being made which will significantly affect the environment."^{**}

The California act was patterned after the NEPA and is quite similar in its requirements for the preparation and submission of an environmental impact statement. Like the NEPA, it is concerned about adequate consideration of alternatives and states that: "An examination and evaluation of alternative features or designs for the project which may reduce adverse effects on the environment or increase beneficial effects is essential. Environmental enhancement features of a project should be balanced against possible detrimental effects of other features of the project."

The CEQA specifications regarding impact statement content differ slightly from Section 102(C) of the national act in that they additionally require a discussion of any mitigation measures

^{*}Hereafter abbreviated as CEQA.

^{**}As a result of the California Supreme Court decision re Friends of Mammoth vs. Board of Supervisors of Mono County, 21 September 1972, the law is not limited to public projects or projects on public lands, but includes private development on private land if it can be demonstrated that there may be 'significant environmental effect.' (43)

proposed to minimize the impact.

Although the California and Federal acts are quite similar in respect to requirements for impact statement content, they are different in terms of the process of impact statement circulation, review and comment. Figure I illustrates the component steps of both the federal and state's environmental impact statement process as prescribed by the respective acts and their subsequent guidelines as of March, 1972.

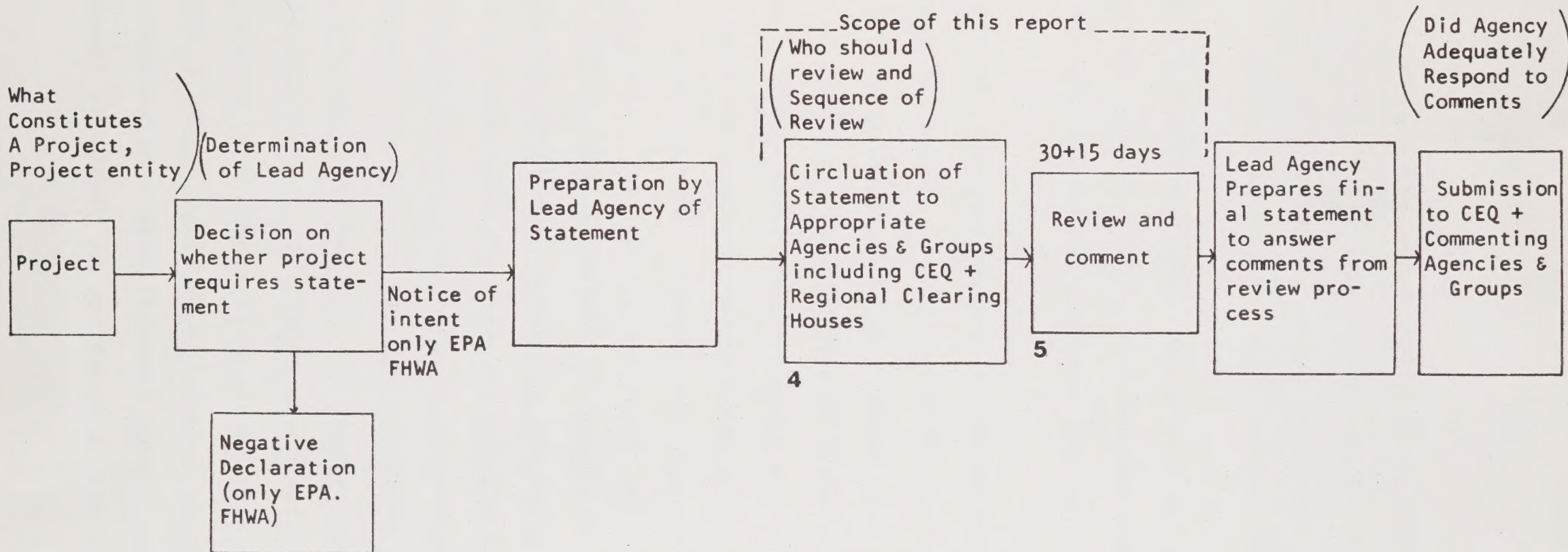
The most significant difference between the two processes is that CEQA requires the preparation of only one impact statement, whereas NEPA requires two sequential statements: a draft statement and a final statement.* Another major difference is in each act's designation of the principle coordinating agency and the conflict resolution agency. On the federal level the Council on Environmental Quality is the designated agency for both roles. The CEQA specifies that the Office of Intergovernmental Management will be the coordinating agency and the Resources Agency or the cabinet will be the conflict resolution agency.

Figures 1A and 1B, in addition to diagramming how the state and federal impact statement processes differ, are intended to delineate the scope of this study. The objectives of this

*However, this may change. The interim guidelines issued (April 28, 1972) by the Office of the Secretary for Resources require that the lead agency shall prepare an amended impact statement, "which shall consider fully the suggestions, criticisms and comments raised through the review process for possible modification of the project." (18) These interim guidelines are tentative and subject to revision prior to adoption.

report, as stated in the preface, are to provide operable procedures to a clearinghouse agency for the performance of Steps 4 (circulation of statements to agencies and groups) and 5 (review of contents of statements). This report does not directly address the issues associated with the other steps of the impact process or the entire impact process itself. However, the other steps are discussed in this report when they are directly relevant to the execution of Steps 4 and 5. The diagram does indicate the questions that are associated with the execution of each of the other steps, but an analysis to answer these questions is beyond the scope of this study.

As Directed by Council on Environmental Quality Guidelines or Other Agency Guidelines.



CEQ - Council on Environmental Quality
 EPA - Environmental Protection Agency
 FHWA - Federal Highway Administration

Figure 1 A

II THE SCOPE OF ENVIRONMENTAL IMPACT STATEMENTS

When NEPA was enacted in January of 1970, explanatory guidelines were not issued. Federal agencies had to interpret for themselves the meaning of the terminology in Section 102(C) (pages 3 & 4 of this report). Basic questions revolved around the issues of: What constituted "an adverse environmental impact?" What was "short term use" versus "long term productivity?" What constituted an "irreversible commitment of resources?"

Consequently, the impact statements prepared by Federal agencies in the months following the issuance of NEPA, were based on the agencies' own interpretations of Section 102(C). Generally, the statements described only a project's immediate or primary impacts; the impacts identified usually did not extend beyond the project's immediate site -- as in the right of way of a highway -- and the description was confined to initial condition changes in the physical environment such as obstruction of drainageways, visibility of road scars, and vehicle noise, etc.

The California Environmental Quality Act, passed September 18, 1970, was also without directive guidelines.

In the subsequent two years following enactment of NEPA and in the eighteen months following passage of CEQA, legislative, judicial and administrative interpretations and guidelines have significantly affected the scope and content of impact statements.

For the most part, these interpretations and guidelines seek to answer the question of 'what constitutes a significant environmental impact' and therefore needs to be assessed in the

State Environmental Impact Statement Process

As Directed by Office of Secretary of Resources Guidelines April 28, 1972 on the California Environmental Quality Act

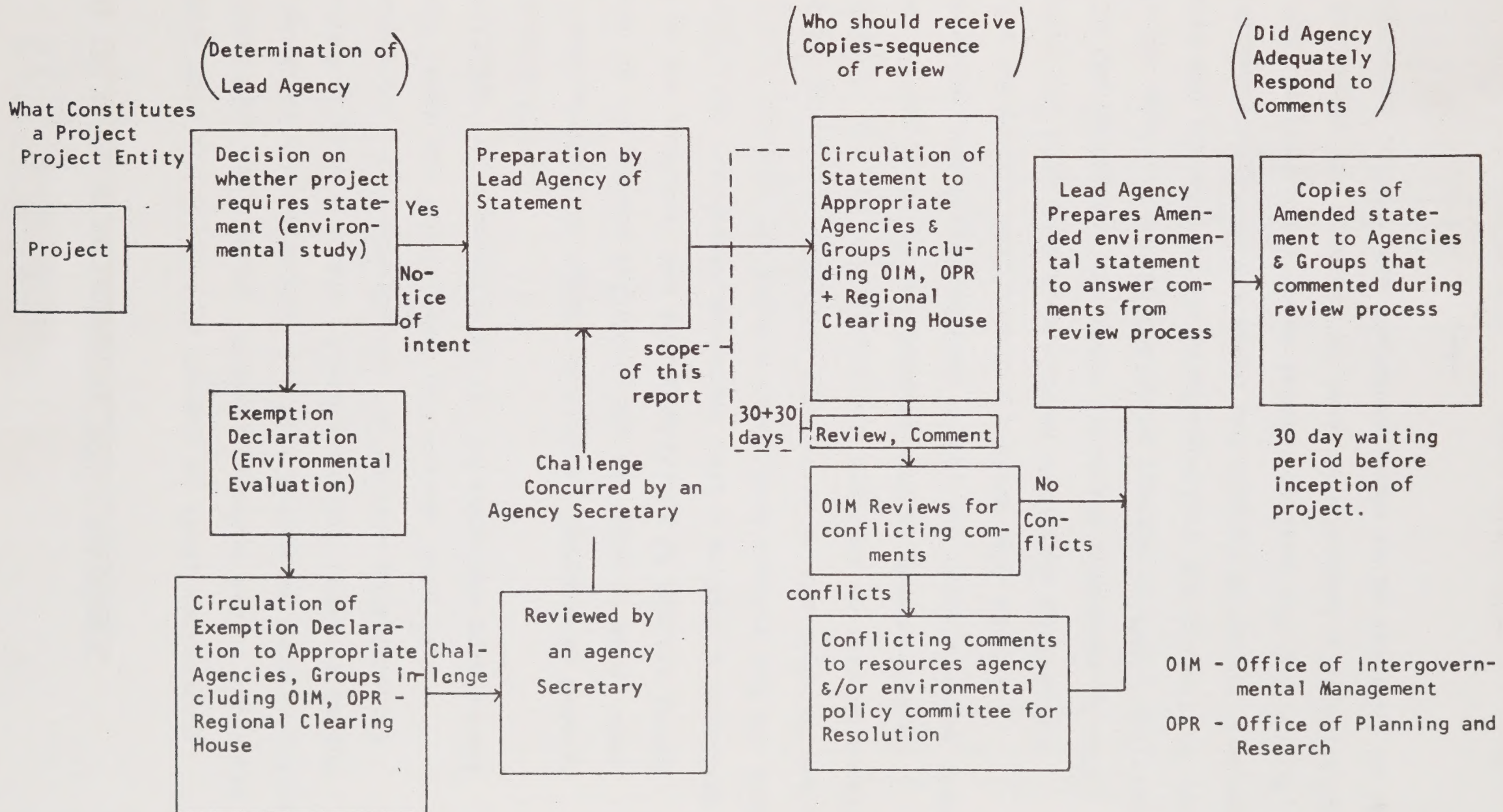


Figure 1 B

impact statement. The answer lies both in giving meaning to the word 'environment' and measure to the word 'significant.' Presently, however, there is no commonly acceptable or operational definition of what is or is not environment, per se, or significant, per se.

A first step toward clarification was taken on April 30, 1970, when the Council on Environmental Quality issued "Interim Guidelines -- Statements on Proposed Federal Actions Affecting the Environment."⁽³⁰⁾ These guidelines are applicable to all Federal agencies that prepare or review impact statements. In reference to statement contents, the guidelines specify the following as criteria for determining impact significance:

- ▶ Major federal actions significantly affecting the quality of the human environment is to be construed by agencies with a view to the overall cumulative impact of the action proposed (and of further actions contemplated).
- ▶ Agencies should bear in mind that the effect of many federal decisions about a project or complex of projects can be individually limited but cumulatively considerable.
- ▶ Proposed actions - the environmental impact of which is likely to be highly controversial.
- ▶ Adverse effects include those that degrade the quality of the environment, curtail the range of beneficial uses of the environment or serve short term, to the disadvantage of long term, environmental goals.
- ▶ Actions which may have both beneficial and detrimental effects, even if, on the balance, the agency believes that the effect will be beneficial.
- ▶ Adverse effects include both those that directly affect human beings and those that indirectly affect human beings through adverse effects on the environment.

The guidelines provide the following examples of environmental conditions that should be considered:

- ▶ Impact on ecological systems, such as wildlife, fish and marine life.
- ▶ Both primary and secondary significant consequences for the environment. For example, the implications, if any, of the action for population distribution or concentration should be estimated and an assessment made of the effect of any possible change in population patterns upon the resource base, including land use, water, and public services of the area in question.
- ▶ Water or air pollution, damage to life systems, urban congestion, threats to health or other consequences adverse to the environmental goals in Section 102(b) of NEPA.

Additional environmental statements by NEPA 102(b) refer to, "esthetically and culturally pleasing surroundings," and direct agencies to:

- ▶ Preserve important historic, cultural and natural aspects of our national heritage and maintain wherever possible an environment which supports diversity, and variety of individual choice.

The guidelines contain two particularly significant implications. (1) They clearly indicate that social conditions, such as population distribution, public services, and variety of individual choice are to be considered as components of the environment. (2) They require that impacts be traced beyond initial condition changes to second level impacts, particularly addressing the impacts of changed population distribution patterns upon the resource base.* Of direct concern to a regional clearing-house are impact statement's assessments of a project's potential influence on surrounding land use and/or demands on infrastructure systems (water and power supplies, sewerage facilities,

* Growth inducing impacts must be considered in environmental impact statements, effective March 1973, (AB 301, 1972 Session) required by CEQA.

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highways, airports), or public services (schools, health care, police and fire protection).

On September 18, 1970, when the California Environmental Quality Act became law, additional specific environmental conditions were required to be considered. The law stated:

- ▶ Prevent the elimination of fish or wildlife species due to man's activities. Insure that fish and wildlife populations do not drop below self-perpetuating levels.
- ▶ Preserve for future generations representatives of all plant and animal communities and examples of the major periods of California history.
- ▶ Clean air and water, enjoyment of aesthetic, natural, scenic, and historic environmental qualities, and freedom from excessive noise.

The act further directs that:

- ▶ The legislative bodies of all cities and counties which have an officially adopted conservation element of a general plan shall make a finding that any project they intend to carry out, which may have a significant effect on the environment, is in accord with the conservation element of the general plan.* All other local governmental agencies shall make an environmental impact report on any project they intend to carry out which may have a significant effect on the environment and submit it to the appropriate local planning agency as part of the report required by Section 65402 of the Government Code.

Local governments are presented with the option of preparing individual impact statements on a project to project basis or adopting a conservation element as presently outlined by AB 966 (1972). Because the continuous preparation of impact

* All counties are required by State law to have a conversation element in their general planning program by July, 1973. (AB 966, 1972 Session).

statements is time consuming and politically charged, it appears that local governments will be inclined to adopt conservation elements and evaluate projects on a conformity basis. If the conservation element option is selected by local governments, the issue will be, 'Is the conservation element of sufficient strength and scope to achieve the goals and spirit of CEQA.'

On May 4, 1971, the California Resources Agency, in coordination with the Office of Planning and Research, issued "Internal Working Procedures" for the orderly preparation and review of environmental impact statements. These internal working procedures are temporary guidelines for state agencies or local agencies with state funded projects until such time as the Resources Agency formally adopts new "interim guidelines."** The Resources Agency is currently circulating guidelines proposed by the Office of Planning and Research for review and comment before adoption as "interim guidelines." These "interim guidelines" were released for public review and comment on May 4, 1972. (They have not been adopted).

According to the interpretation of the Resources Agency, the "interim guidelines" will pertain to state projects and local projects that are state funded. Local agencies with projects that are not state funded and private projects do not have to comply with the "interim guidelines."

** A critical review of these internal working procedures was issued by the Attorney General in a petition.(12)

The Resources Agency anticipates that the "interim guidelines" will afford local government and private developers a model for developing their own objectives, criteria, and procedures for compliance with the California Environmental Quality Act. However, the point of voluntary compliance is questioned by the Attorney General's office.

The "internal working procedures" of May 4, 1971, states that projects are likely to be significant if they:

- ▶ Lead to a noticeable change in the surrounding noise level for a substantial number of people.
- ▶ Divide or disrupt an established community, divide existing uses, e.g., cutting off residential areas from recreation areas or shopping areas, or disrupt orderly, planned development.
- ▶ Have a significant aesthetic or visual effect.
- ▶ Have any effect on areas of unique interest or scenic beauty.
- ▶ Destroy or derogate from important recreational areas not covered by Section 4(f) of the DOT Act.
- ▶ Substantially alter the pattern of behavior for a species.
- ▶ Interfere with important breeding, nesting, or feeding grounds.
- ▶ Adversely affect the water table of an area.
- ▶ Disturb the ecological balance of a land or water area.
- ▶ Involve a reasonable possibility of contamination of a public water supply source, treatment facility or distribution system.

In addition to the content specifications of NEPA - Section 102(C), and CEQ guidelines of April, 1970 - the "internal working procedures" of May, 1971 specify statements that include:

"The probable impact of the proposed project on the total environment (as defined - environment refers to the totality of man's surroundings; both social and physical, both natural and manmade. It includes human, plant and animal communities and the forces that act on all three)."

On December 11, 1971, the Council on Environmental Quality published NEPA guidelines that were submitted to it by Federal Agencies.⁽³²⁾ The guidelines developed by each agency pertain only to their own preparations and/or review of impact statements, and have no direct influence on other agencies. The guidelines provide further expansion in the scope of what constitutes 'environment' and furnish additional examples of what could be considered to be a significant environmental impact.

The Department of Agriculture's guidelines appear to be the first to explicitly state that economic factors should be included in the environmental impact statement.

In addition to project's impact on the physical environment, economic factors must also be known for the complete assessment and are to be included as part of the environmental statements. Significant economic impacts on the public are to be described, such as employment, unemployment, and others.

The Department of Health, Education and Welfare's guidelines add to the Council on Environmental Quality's list of environmental conditions that should be considered as significant:

- ▶ The likelihood that associated or related facilities will have to be built near the project (such as schools near a hospital).
- ▶ The effect the project will have on traffic patterns and the public health consequences that may result from rerouting traffic or changing road patterns.

- ▶ The amount of effluents released into the atmosphere.
- ▶ Any increase in noise levels which can be anticipated as a result of the project.
- ▶ The effects the project will have on residences and commercial businesses in the area, including the number of people who might have to be relocated and problems that are likely to occur as a result of such relocation.
- ▶ The impact the project will have on vector control.
- ▶ The environmental impact on recreation facilities, such as comfort stations, camp grounds, recreation waters and the like.
- ▶ The Federal Highway Administration guidelines offer a direct interpretation of each component of NEPA's Section 102 (C). Thus, in the statement "relationship between local short term uses of man's environment and maintenance and enhancement of long term productivity," "short term uses" are defined as by "construction, changes in traffic patterns, taking of natural features such as trees, etc., and man made features such as homes, churches, etc.;" and "long term productivity" is described as "foreseen changes in land use resulting from the highway improvement, or other similarly related items that may either limit or expand land use, affect water, air, wildlife, etc., and other environmental factors."

The statement "irreversible and irretrievable commitments of resources which would be involved if the proposed action should be implemented" is interpreted to mean (in terms of highways), "The improved access and transportation afforded by a highway may generate other related actions that could reach major proportions and which would be difficult to rescind. An example would be a

highway improvement which provides access to a non-accessable area, acting as a catalyst for industrial, commercial, or residential development of the area."

Additional notable aspects of the FWHA guidelines are the specifications for project descriptions and measures to mitigate the impact of the project. One of the major problems in conducting a review of an impact statement is caused by omissions or inadequate description of the project's actual actions-activities or its locational setting. Proposed mitigation measures are additional project action-activities and can generate their own impacts. The FHWA guidelines provide the most complete listing, to date, of what actions-activities, locational characteristics, and mitigation measures should be described for a particular project type (highways).

On January 14, 1972, the Environmental Protection Agency issued its guidelines for the preparation of impact statements.⁽⁴⁰⁾ The section entitled, "Guidelines for determining when to prepare an impact statement," states that "primary effects (e.g., siltation during construction of waste treatment facilities), should not give greater consideration than the secondary effects (e.g., land use) which often have more far reaching environmental consequences." Within this same section the EPA lists specific criteria for preparing impact statements on waste water treatment facilities and water quality management plans. The guidelines direct impact statements to be prepared:

When the project or plan will result in the installation of a major interceptor line that will provide service to underdeveloped areas or permit expansion of already developed areas, and the effects this will have on residential and commercial growth have not been adequately considered in the interim or final plan encompassing the project, or in the grant application and associated documents.

When the environmental impact is the result of a number of projects impacting upon the same resource, as when a number of projects individually divert water from one river basin into another, or discharge effluent into ocean instead of using the effluent to recharge to the ground aquifer.

As agencies develop more explicit and comprehensive guidelines for the preparation of impact statements, the task of reviewing statements becomes appreciably easier. It may be only necessary for the review agency to determine if the impact statement conforms to the lead agency's own guidelines. However, agencies in the project-proponent position (Corps of Engineers, Bureau of Reclamation, FHWA, Federal Power Commission, AEC, Forest Service, etc.), are understandably reluctant to impose guidelines on themselves that would be so all-encompassing and stringent as to seriously limit their future activities and programs.*

*Officials in the project proponent agencies have referred informally to this situation as the "cutting your own throat" predicament.

PARTICIPATION OF A REGIONAL CLEARINGHOUSE IN THE REVIEW OF
IMPACT STATEMENTS.

According to the U. S. Office of Management and Budget circular A-95, as amended April 1, 1971,⁽⁴²⁾ regional clearinghouses (such as ABAG) are to review Federal projects for the purpose of assuring maximum consistency with State, regional and local plans. The clearinghouses are also expected to assist Federal agencies in determining whether their projects are in accord with applicable Federal laws (such as NEPA). The circular further stipulates that the regional clearinghouse should review projects (such as those described in environmental impact statements) in regard to the following State, regional, or metropolitan objectives:

- (1) Appropriate land uses for housing, commercial, industrial, governmental, institutional, and other purposes;
- (2) Wise development and conservation of natural resources, including land, water, minerals, wildlife, and others;
- (3) Balanced transportation systems, including highway, air, water, pedestrian, mass transit, and other modes for the movement of people and goods;
- (4) Adequate outdoor recreation and open space;
- (5) Protection of areas of unique natural beauty, historical and scientific interest;
- (6) Properly planned community facilities, including utilities for the supply of power, water, and communications, for the safe disposal of wastes, and for other purposes; and
- (7) Concern for high standards of design.

The California Environmental Quality Act does not specifically declare that regional clearinghouses will review impact statements prepared by state or local agencies. However, regional clearinghouses

participation is indicated by Section 21105 of the Act which declares that environmental impact statements shall include comments received from other governmental agencies which have jurisdiction by law or special expertise with respect to an environmental impact involved.

The "internal working procedures" issued by the Resources Agency, June 21, 1971, explicitly state that the regional clearinghouse will review all impact statements prepared by local or state agencies for projects within its regional boundaries or projects effecting environmental conditions within its regional boundaries. The most recent interim guidelines issued by the Office of the Secretary for Resources do not modify this review role.⁽¹⁸⁾ The Office of Planning and Research has indicated that new guidelines will not be issued until the legislature has determined whether or not to amend CEQA in response to the Mammoth vs. Mono County decision.

III THE ROLES OF A REGIONAL CLEARINGHOUSE IN REVIEWING IMPACT STATEMENTS

Distinction should be made between the two different positions from which impact assessments are made. Assessments are either made by the proponent of a project (lead agency) in review, or by the public agencies or groups affected by the project. Normally, a regional clearinghouse will only be in a position to review impact statements prepared by others. The exception to this review position would occur when the clearinghouse prepares a statement on the impact of a major revision in its own regional plan.

According to the directives of A-95, and guidelines on implementation CEQA and NEPA, the regional clearinghouse review of impact statements should serve two functions.

- (1) Examination of an impact statement's content to determine if all impacts of regional significance have been adequately identified; and determination of how the impacts identified relate to regional plans, programs and policies.
- (2) Co-ordination of the review process within the region to assure that all federal, state and local agencies and regional publics that may have designated authority, expertise or special interest regarding the impacts identified have an opportunity to fully participate in the review.

Impact statement review, as presently conducted, is not a predictive assessment of how impacts will actually effect those environmental conditions for which the reviewing agency is responsible. Rather, it is a process of identifying omissions and inadequacies with which the reviewing agency is particularly familiar because of its expertise or interest. In most cases, review comments either (1) specify impacts that the statement fails to mention, or (2) criticizes the consideration given to

the impacts that are identified. The criticism may be of either the depth or rigor of the investigation conducted to determine the impacts, or of the valuation placed on the impacts identified.

For example, the Department of Fish and Game, in reviewing a statement by the State Division of Highways on a proposed highway, could either comment that (a) the statement neglected to consider the possible impact that noise from vehicles on the new highway would have on a near-by wildlife refuge; or (b) if the highway department did consider the noise element and dismissed it, criticize the highway department's judgement that the impact on the refuge is not considered significant enough to modify the highway alignment or design.

Rarely does a reviewing agency actually conduct specific research to predict potential impact. Lack of time, and/or money and staff limitations, prevent or severely limit any actual testing for predictive assessment, either of potential impacts identified in the original statement or by the reviewing agency.

Thus, review agencies - including the regional clearinghouse - are usually confined in their comments to suggesting where further investigation is needed to assess impacts omitted or inadequately described in the statement, or offering their own valuations of the significance of potential impacts of the project under review.

The comment capability indicates that a regional clearinghouse should have a review procedure that at least will identify omissions and inadequacies in the impact description and provide a means of evaluating the impacts identified in relation to the plans, programs, and policies of the clearinghouse.

In reviewing the contents of a statement, most agencies or groups will confine their investigations to those impacts and that part of the statement related to the area in which they have designated authority, expertise, or interest. However, a regional clearinghouse agency, because of its comprehensive planning perspective, should examine all of the aspects of the impact statement that may have regional significance. Therefore, the regional clearinghouse agency generally will be more involved in a total review of an impact statement than most other review-functioning agencies.

Due to the recent California Supreme Court decision requiring impact statements for private developments,⁽¹¹⁾ it is likely that a rapidly increasing number of environmental impact statements will be transmitted to ABAG for review. This increase, coupled with the normal volume of statements circulated for review, requires that ABAG establish criteria to filter out those environmental impact statements, versus those statements that it will either (1) not review, or (2) review in a limited degree.

The following five points set forth criteria that may be useful in determining those environmental impact statements that ABAG will review, versus those it will not review.

- (1) Determine areas of regional environmental significance or critical environmental concern. (e.g., Bolinas Lagoon and watershed, Mt. Tamalpias, low-income communities). All projects of specified scale and type proposed within these areas would be automatically reviewed by ABAG.
- (2) Establish a threshold of size/scale for projects and programs on action be reviewed. All projects above the threshold level would be reviewed by ABAG (e.g., more than 50 housing units, grading over X number of cubic yards).

- (3) Establish a project type listing based on the nature of the regional significance of the project (e.g., expansion of airports, extension of rapid transit). All projects listed would automatically be reviewed by ABAG.
- (4) All projects with impacts (setting condition changes) crossing political boundaries would automatically be reviewed by ABAG. (e.g., two counties, city-county, city-city).*
- (5) All projects of a highly controversial nature with interested or affected parties distributed in two or more counties, or throughout the entire region, would automatically be reviewed by ABAG.

Depending on the nature and scale of the project and its associated impacts, there will be a number of agencies or groups that have the designated authority or expertise to review the statements. The NEPA guidelines, as presently written, require that all agencies or groups intending to review and comment on the lead agency's draft impact statement, do so within 45 days. (30 days standard plus a routine 15 day extension). The CEQA allows 60 days for review (30 days standard and a 30 day extension on request).

This time period is the only assured opportunity for a reviewer's comments to become part of the official record. Review comments received by the lead agency after 45 or 60 days need not become part of the permanent record, nor does the proponent agency need to consider the comments in its final statement. The time period creates a situation in which each agency is simultaneously preparing its own review comments - thereby severely limiting

*The boundaries of the area which may be significantly affected by the proposed project must be delineated in the impact statement as required by AB-301 (1972). Effective March, 1973.

interagency co-ordination and cooperation. The review comments generated by one agency will often assist other agencies in the preparation of their review analysis. (e.g., Fish and Game depend on the water quality review by NEPA or the Regional Water Quality Control Board).

The limited review period creates overlaps in review -- duplication of effort by two agencies, and gaps in review -- an agency will assume that a particular impact is being covered by another agency.

The limited time period is particularly significant to clearinghouse participation in the review process. ABAG cannot be assured of reviewing the comments of other agencies with particular expertise in certain aspects of the impact statement. This situation removes the opportunity for synthesis or expansion of specific comments of special purpose or special interest agencies. If NEPA review revealed that a proposed sewage plant would considerably increase the potential for residential development of an area, and the Air Pollution Control District indicated an air quality problem in the area, ideally ABAG should be able to identify the potential consequences of these integrated conditions, particularly as they relate to its own plans. It is apparent that the ultimate impact of a project is determined by the interacting combination of individual condition changes that often will not be seen by simply listing these individual changes separately.

At present, the regional clearinghouse cannot depend on receiving comments from other agencies and groups in time to draft it's own comments. Ideally, the regional clearinghouse should spend a minimum of review time and energies on aspects of the impact statement where other reviewing agencies have special expertise or designated authority. Concentration should be on identifying and evaluating the regional planning implications of the projects.

However, under the present time schedule, to be assured of identifying all the project impacts that may have regional implications, the clearinghouse requires a review procedure that covers the entire spectrum of environmental, social and economic impact considerations, including those areas where other commenting agencies have designated authority or special expertise, such as air quality, water quality, wildlife, and employment.

Hopefully in the future the NEPA and CEQA review processes will be revised to develop a time schedule that will permit the clearinghouse to incorporate and build on comments from other agencies and groups. This would allow the clearinghouse to concentrate on integrating the comments to determine the regional planning implications for which they have primary responsibility.

In it's role as regional co-ordinator in the impact statement review process, the clearinghouse should have a review procedure that will enable it to determine which agencies and groups may have designated authority, expertise or special interest in the impacts identified. Two specific questions that should be answered by the clearinghouse are, "What impacts have been identified that apparently no agency or group will be reviewing?" and, "Which

agencies or groups that have designated authority, expertise or special interest for an identified impact have not received copies of the impact statement?"

Regional clearinghouse co-ordination should also address the problem of phasing the sequences of review among agencies and groups. Agencies and groups dependent on other reviewers' comments should be assured of having the comments in time to compose their own review. To optimize the co-ordination in the sequence of review among agencies, the length of the NEPA and CEQA review periods would have to be extended beyond the present limits. Co-ordination could also include the identification of available data and information that may assist agencies and groups in reviewing specific impacts.

This discussion of the roles of a regional clearinghouse suggests functional roles and specific tasks to be accomplished with respect to each. Appendix G outlines ABAG's various clearinghouse roles.

IV IMPACT ASSESSMENT

On a conceptual basis, impact assessment consists of two distinct considerations; (a) the project, it's actions, characteristics, and activities; and (b) the project setting, namely, that area occupied by or surrounding the project which directly or indirectly interacts with the proposed project. The concept of the project setting is central to the review procedure and to the assessment of impacts, since only through the specific conditions of setting, can the actual impact consequences be determined for subsequent evaluation. (Fig. IV-A).

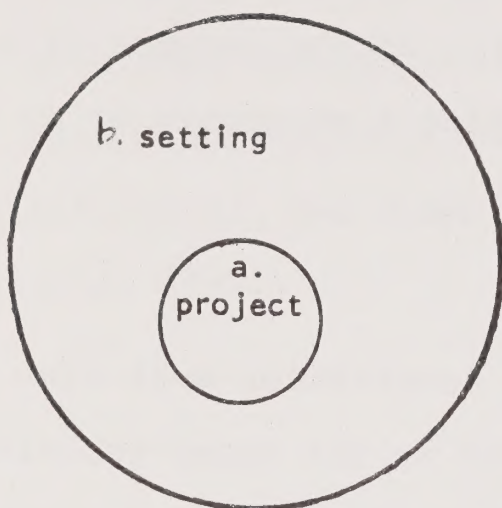


Figure IV-A

Project and setting interactions can occur in two separate manners:

- (A) Impacts of the project on the setting conditions; and,
- (B) Impacts of the setting conditions (actions) on the project.

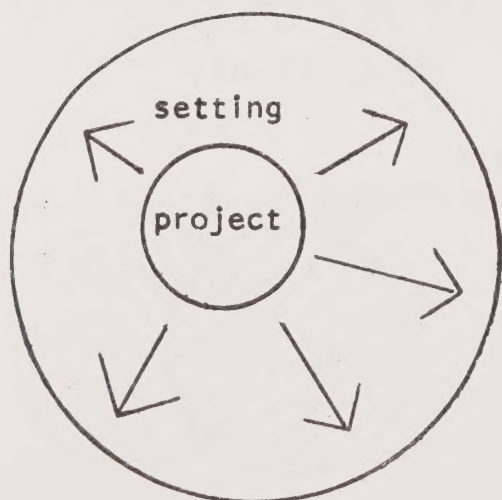


Figure IV-B

For example, the project might involve the emission of particulate matter, but the setting conditions would include a high air pollution assimilation capacity, thus minimizing the impact. However, a setting with low assimilation capacity, (e.g., Livermore Valley), would be severely

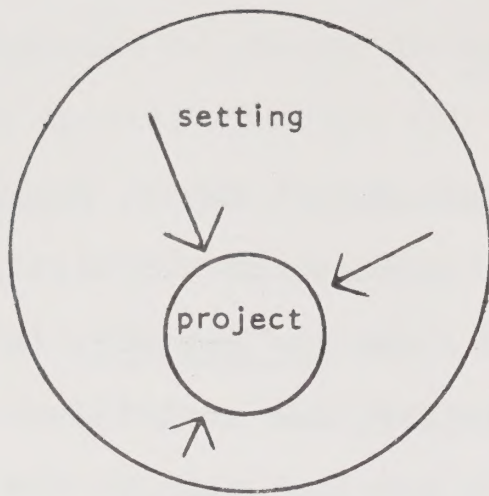


Figure IV-C

impacted by the same project. Setting conditions, such as landslides, faults, high water table, high incidence of fog or exposure to high wind conditions, that would have continuing impacts on projects, constitute the second type of impact. However, NEPA and CEQA do not require the consideration of the impacts of a setting

on a project. (Fig. IV-C). (e.g., siting a structure on an active earthquake fault zone).

VARIABLE RELATIONSHIPS

Determination of project/setting interaction must also consider the cumulative impact produced by the super-imposition of projects and their associated settings with other projects and their associated settings. Super-imposition results from either of two conditions (or their combinations): (a) two or more projects can share the same setting; and/or (b) the settings associated with a project overlap but are not congruent. Either super-imposition can produce two cumulative impact expressions -- with additive or synergistic effects. (Fig. IV-D).

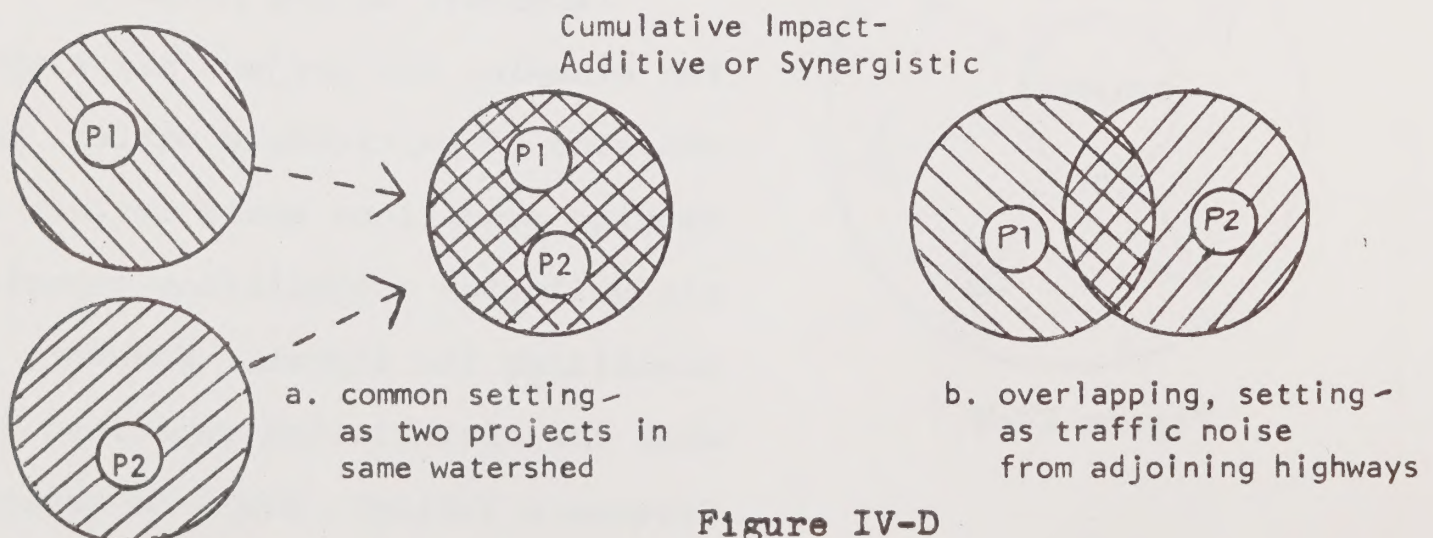


Figure IV-D

Impact assessment should also consider how the project and the setting conditions will change over time. "Are the project's actions permanent or temporary, " and "how will they affect the intensity and duration of changes in setting conditions," are basic questions that must be answered in the assessment process. The project may be temporary but the setting condition changes permanent. It can be expected that for any given project, some condition changes will decrease over time (erosion produced by site preparation), some will remain constant (visibility of the structure), and some will increase (surrounding land use change). (Fig. IV-E).

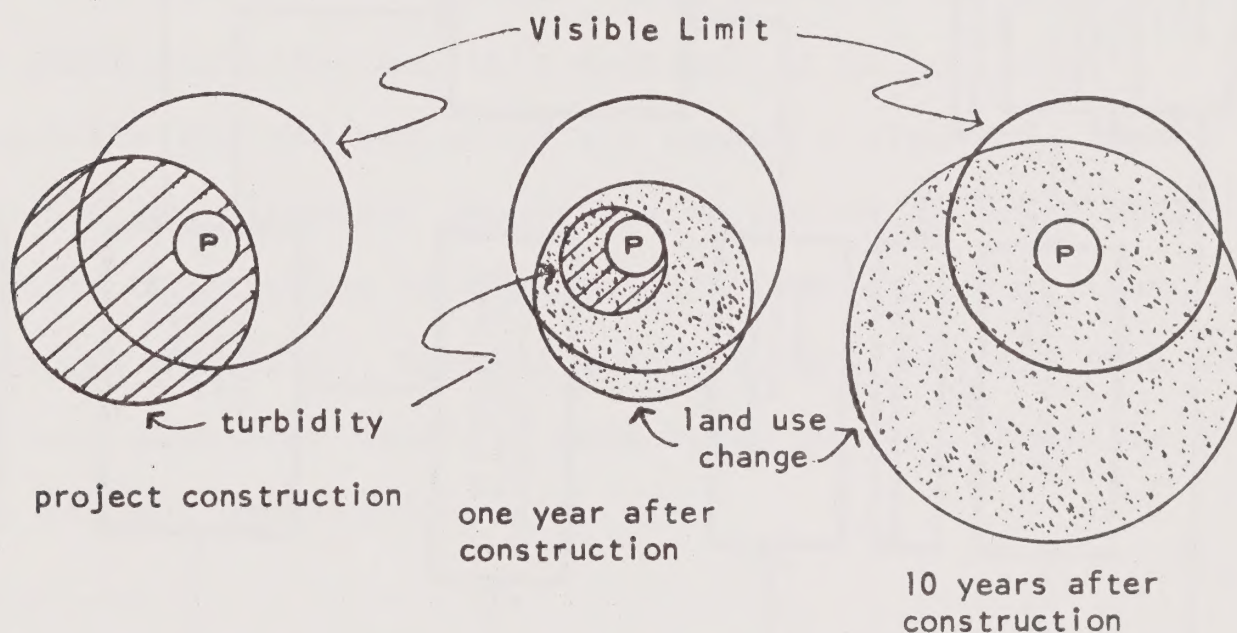


Figure IV-E

Flow Diagram -- Impact Review Procedure

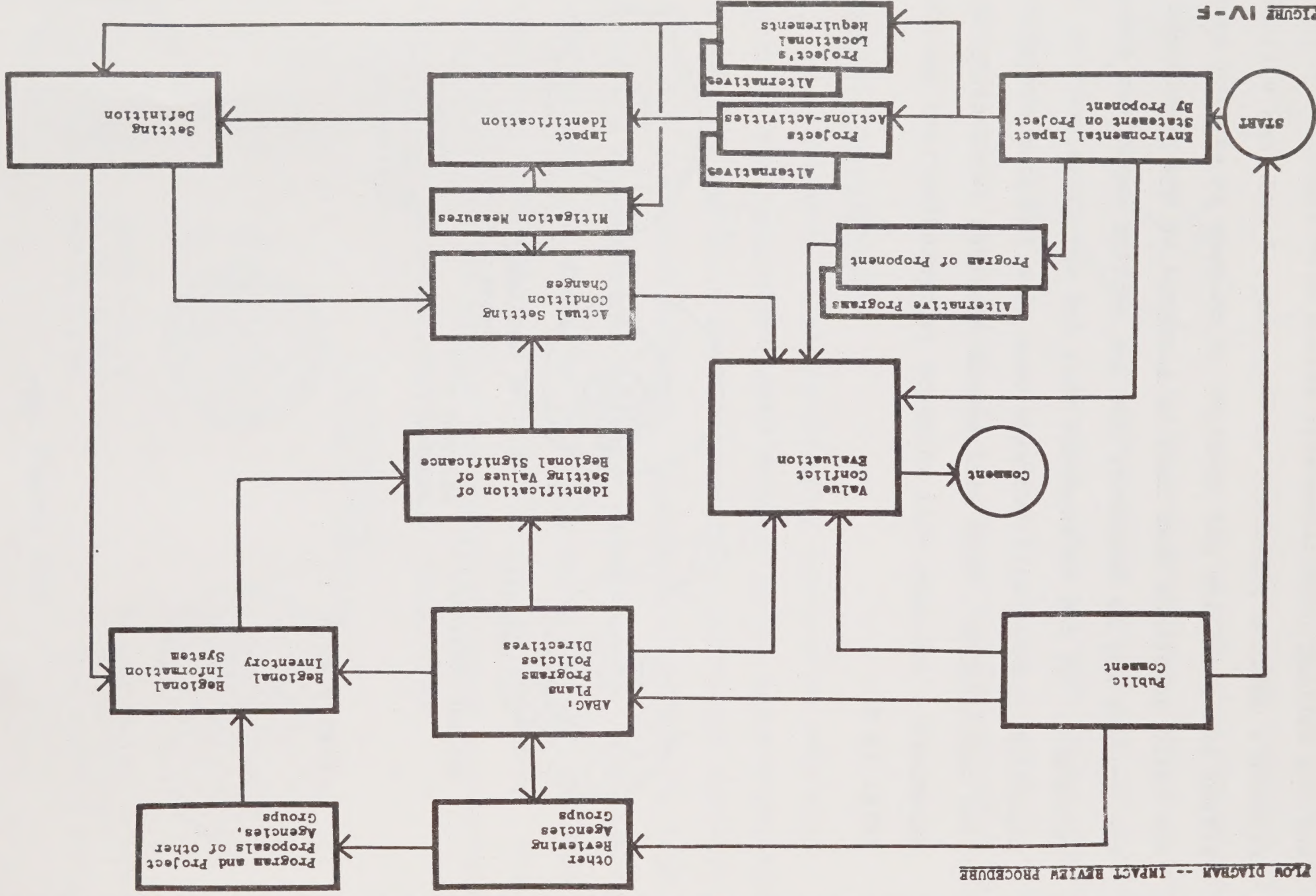


FIGURE IV-5

IMPACT ASSESSMENT BY A REGIONAL CLEARINGHOUSE

Figure IV-F presents a diagrammatic outline of how the content of an impact statement might be reviewed by a regional clearinghouse organization such as ABAG. The selection and organization of the discrete components, information requirements, and the sequence of steps were based on the regional clearinghouse's distinct role in reviewing impact statements. Although other agencies with review authority would not be expected to follow exactly the same process, the basic steps of impact assessment are essentially the same for all reviewing agencies.

As indicated in the diagram, the impact review process is initiated by the receipt of the statement prepared and submitted by the lead agency. A complete description of the project - (it's characteristics and it's setting) is an essential prerequisite for the review of any impact statement. Impact statements are virtually impossible to review in depth unless a complete description of the project's action, activities, and location is provided. Several agencies, most notably NEPA and FHWA, have developed specific guidelines on what should be included in the project description.*

* Describe the recommended or proposed action, it's purpose, where it is located, its time setting, and its inter-relationship with other projects or proposals. To prevent piecemeal decision making, the project shall be described in as broad a context as possible. The relationship to other projects and proposals shall be discussed, including not only other agency activities, but also those of other governmental and private organizations. Development and population trends in the project area shall also be included. Maps, photos, and artist's sketches should also be incorporated where they help depict the environmental setting. NEPA Guidelines Federal Register, January 20, 1972.

The diagram indicates two initial steps: (1) project-related review and, (2) program-related review. The project should be examined to determine if it is a component of a larger, long range program. Proponent or permit agencies often break a major program into many individual projects. Impact statements are then prepared for each of these smaller projects (often insignificant in scale of impact when evaluated on an individual basis). The practice is termed "piecemealing." The classic example is where two separately constructed sections of a highway, upon completion, force a connecting section to be routed between them. A regional agency should be particularly able to comment on how a project does or will relate to a longer term program and what the impact implications of that program would be.

The geographical coverage of a regional agency permits it to detect overall trends and potential interconnections of scattered projects and also to follow impacts beyond their manifestation in a localized area. It also assumes that the regional agency would be already familiar, on a planning basis, with all the other long term programs within its boundaries and would be able to predict how a component project would relate to these future program developments.*

*CEQA Guidelines stipulate: "Agencies should bear in mind that the effect of many ... decisions about a project or complex of projects can be individually limited but ultimately considerable. This can occur when one or more agencies over a period of years puts into a project individually minor but collectively major resources, when one decision involving a limited amount of money is precedent for action in much larger cases or represents a decision in principle about a future major course of action, or when several government agencies individually make decisions about partial aspects of a major action." (30)

A problem for both the preparer and reviewer of an impact statement is to distinguish the point at which the project stops and the program begins. Is the project described in the impact statement distinguishable as a separate entity apart from the larger program? Should impact statements on a highway section describe the adjoining sections as well as the five year regional highway program?

The diagram indicates that the review agency would be required to make a separate impact assessment for the overall program as well as the particular project.

IMPACT IDENTIFICATION

The other initial step in the diagram is project-impact identification. Impact identification describes the process of relating the particular project's actions or activities, (e.g., grading or removal of housing) to a potential impact, (e.g., stream sedimentation or reduction of available housing stock). There are several specific complications in accomplishing this step. Perhaps the most basic complication lies in determining the scope of considerations in identifying impacts; in deciding how far one ventures beyond the arena of the natural environment into the social, cultural, and economic arenas (as previously illustrated by the expanding scope and number of considerations cited by NEPA and CEQA guidelines).

A second problem in identifying impacts is in factoring the complex and inter-related environmental, social and economic systems into a comprehensive listing of conditions that are discrete enough to give measure to a project's actions-activities.

For instance, a highway project's grading action can have an effect on the condition of the water quality of a stream. However, the term "water quality" - when used to describe a condition change - provides no unit of measure to specify its relationship to grading. More specific condition changes, such as turbidity and sedimentation, must be considered to provide an assessable connection between water quality and grading.

USGS Circular 645, "A Procedure for Evaluating Environmental Impact,"⁽²²⁾ appears to have been the first government agency attempt to compile a list of condition changes that would be related to a project's actions-activities. However, the USGS procedure only describes the initial condition change.

This directly relates to a third problem: the degree of considerations; that is, how far an agency should trace an initial condition change through possible secondary, tertiary, etc., levels before concluding with a terminal effect or impact.* For example, the initial condition of "increased runoff" needs to be traced through the subsequent conditions of "peak flows," and "flooding" to the consequent "degradation of stream's aquatic habitat quality."

*Significant effects should include environmental consequences of both a primary and secondary nature. Primary effects (e.g., siltation during construction of waste treatment facilities), should not be given greater consideration than secondary effects (e.g., land use) which often have more far reaching environmental consequences. Environmental Protection Agency Guidelines. (40)

To describe such a chain of initial to secondary to tertiary, etcetera, condition changes, impact networks need to be considered. The term 'network' refers to the fact that one initial condition change usually results in two or more secondary condition changes, each of which in turn can produce one or more tertiary condition changes, and so on.*

The primary value in the use of networks is in providing a comprehensive checklist of possible impacts. Thus, through a network analysis process a regional clearinghouse would be in a position to determine whether the preparer of an impact statement has identified all the possible impacts that have regional implications.

The review procedure should reveal if the preparer of the impact statement has: (1) failed to mention certain aspects of the project that would generate an impact, or (2) failed to mention certain impacts that are normally associated with those actions and activities that are specified in the description of the project. To identify these omissions, the reviewer should have his own systematic checklist to indicate both the actions and activities normally associated with a project type** (highways, housing developments, etc.), and the impacts normally associated with

*For a description of the impact network methodology and a display of how impact networks can be developed, refer to (26).

**To a varying degree, agencies are now specifying the actions-activities that should be included in an impact statement, such as FHWA Policy and Procedure Memorandum 90-1: type of facility, length, termini, basic traffic data, trips for the design year, trips generated two years after completion, right of way width, number of lanes, access control, location of bridges and interchanges.

each of the actions and activities. A comparison between such a checklist and the description of the project's actions and associated impacts should reveal where the omissions occur.

At this point, the clearinghouse could determine by questioning the lead agency if a certain action or activity is in fact connected with the project and, if so, will the normally associated impacts be expected to occur. However, the clearinghouse cannot comment on the statement's omission of all impacts normally associated with a project's actions or activities. Many of the potential impacts identified by the checklist procedure will not occur because the necessary conditions for their occurrence do not exist in the project's locational setting. The potential impacts identified by the checklist need to be related to specific environmental conditions that characterize a project's setting before it can be determined which impacts will probably occur.

The diagram also indicates a separate step entitled, "mitigation measures," located directly adjacent to impact identification. As specified by CEQA, mitigation measures are alternative features or designs for the project which may reduce adverse impacts or increase beneficial effects. They should be considered in two respects: (1) As additional project actions-activities, mitigation measures can create their own adverse impacts; (e.g., dredging to remove sedimentation can have a significant effect on an aquatic habitat. Embankments and retaining walls to stabilize slopes can have a pronounced visual impact).

Therefore, mitigation measures should be checklisted against the same impact identification procedures as the project's original actions-activities. (2) Mitigation measures should also be considered in the usual sense of possibly reducing or eliminating the adverse impacts identified.

SETTING DEFINITION

The setting represents the actual spatial unit that will undergo a discernable condition change as a result of a project's actions or activities.*

Setting definition depends in part on impact identification, as indicated by the diagram. The project's actual locational requirements place it on a certain site or sites. Depending on the actual environmental, social, economic and political conditions that either occupy or surround the site, the impacts identified in the previous step will or will not occur. Knowledge of the surrounding conditions are necessary to predict the time, area and intensity dimensions of those impacts that could occur.

It is common for impact statements to describe the setting condition changes in non-specific terms to to the following lead agency requirement limitations:

- (1) The agency lacks sufficient time to acquire necessary knowledge of the baseline conditions that define the project's impact setting.

*The boundaries of the area which may be significantly affected by the proposed action must be delineated in the impact statement, required by AB 301 (1972), effective March, 1973.

There is often a corresponding lack in adequate time-series data and information collected over a sufficient time period to permit accurate prediction of how a condition may change in response to a project action. Prior to project construction, agencies, or the private proponents, should be required to monitor existing conditions in order to provide baseline data for detecting changes over time. Such monitoring would permit development of better predictive devices.

In order to make more accurate impact assessments in the future, prediction should be made as to the probable regional location of specific project types so that the necessary baseline data and information on possible setting condition changes can be collected well in advance of its need. A clearinghouse can assist by forecasting future development trends in the region, and specifying where regional plans and programs indicate project types may locate.

- (2) The agency lacks sufficient funding to acquire the baseline condition information upon which accurate predictions of impact can be made.

The amount of research necessary to do a thorough analysis of setting condition changes is either greater than the proponent agency can afford to spend on the particular project, or the cost of acquisition of necessary data and information is thought to be not worth the potential cost of the impact identified.

- (3) The agency lacks the methods, modes and devices capable to providing enough accuracy for the predictive assessment of a setting condition change.

This may be either an outright absence of predictive methods or the methods available may not be sufficiently accurate.

Usually it is assumed that there will be a setting condition change, but there is no way to quantify or predict what the dimensions of the change will be. In many cases, only a rough estimate that describes the upper and lower bounds of the possible changes is possible. In a relatively few situations there are fairly good modeling techniques for predicting condition changes in processes which lend themselves to quantification such as hydrology, climatology, demography, and economics.

This report does not mean to imply that in order to review impact statements the regional clearinghouse would conduct its own assessment of setting condition changes to use as a comparison against which to check the impact assessments contained in the statement. Time, funding, and staff limitations presently do not ordinarily permit this type of intensive analysis. However, the regional clearinghouse should be able to determine:

- (1) If the environmental, social and economic conditions that actually characterize the project location would permit those condition changes to occur that the impact statement failed to mention. These would have been identified by the review checklist of the previous step. (For example, will the residents relocated by a highway be placed in a neighborhood that will conflict with their socio-economic status? Is there a wildlife refuge downstream from the housing development?).
- (2) If the environmental, social and economic conditions that actually characterize the project location indicate additional dimensions to setting condition changes that the impact statement did mention. (For example, wildlife will be disturbed by noise from a new highway, but the statement failed to mention that there were several rare species and the area is a university wildlife research site).

For the regional clearinghouse to be able to make such comments requires a considerable amount of information about the actual environmental, social and economic regional conditions for potential projects and their likely locations. Since the clearinghouse must review condition changes in a broader context than the preparer of the statement may consider, it appears particularly important for it to have access to a system or systems that will indicate the information available on specified conditions related to those projects it will review. Given the high information demands of impact identification and assessment, this suggests the establishment of an automated information bank that would permit storage and retrieval of environmental, social and economic condition information by cell or point reference.

Such an information center bank would be built on information being continuously compiled by the regional clearinghouse's own studies and those of other agencies and groups. (Information collected by the USGS-HUD, San Francisco Bay Region Environmental and Resources Study, may prove to be a good foundation for establishing such a regional bank).

The information collected and entered into a bank should be of a type and format that can readily assist in determining the occurrence and dimensions of a setting condition change, or in evaluating the significance of the change. Appendix C presents an initial listing of environmental conditions that, if spatial recorded, could be used in assessing the occurrence, degree and significance of a setting condition change. It is assumed that the bank would be available to all agencies or groups involved

in environmental impact statement preparation or review.

Applications of the regional information bank would include, but not be limited to, the following:

- (1) Determination of whether or not programs and projects developed by other agencies or groups would effect the actual setting conditions of the project.

For example, the change in the land use of an area in which sewage facility was provided would be even greater if, in addition, a new highway was planned to service the area.

- (2) Identification of the groups or publics that would have an interest in the particular setting condition changes predicted.

As mentioned previously, one of the expected roles of a clearing-house is to assure that interested groups have the opportunity to participate in review and comment on the impact statement.

- (3) Identification of the agencies and/or groups that have the most pertinent information about a particular condition change and therefore would be most competent to comment on impact.

A bank could produce a listing of reports and studies that have been done or are being conducted in the area of the condition change.

- (4) Determination of where information gaps exist to the extent that no agency or group can make an adequate assessment of a particular setting condition change.

ABAG should view these information gaps as a priority consideration when recommending or reviewing agency grant applications.

- (5) Identification of the number of projects (specifically their action-activities) occurring - built, under construction, planned - within a given location.

As mentioned earlier, a major problem in impact prediction is to assess how projects affecting the same setting condition will

interact to produce a cumulative condition change (either additive or synergistic). For example, all projects within a watershed that create impervious surfaces could influence peak flow (flood) characteristics of a stream. A regional monitoring of watersheds impervious surfacing would aid in the determination of how future projects in the watershed would increase the stream's peak flow. The recording of impervious surfacing would also enable planners to set limits on watershed development. Limits on impervious surfacing could be set to prevent the stream flow from exceeding desirable peak flows.

The information system should also indicate how any one project may be establishing precedent for cumulative impact on public services and infrastructural systems. A housing development of 25 units may not significantly stress existing public services and infrastructural systems. However, if all similar land in the area were developed to the same density, the demands on public systems could far exceed the capacity. Housing development budgets could be set for an area based on the capacity of public systems. Further examples of cumulative impact producing actions activities that could be monitored according to setting or service areas are:

Airsheds - Sources of effluent, volume, and content.

Watersheds - Areas of site preparation; erosion rates, sources, volume and content of water born effluent.

Ground Water Basins - Groundwater extraction.

Highway Service Areas - Vehicle requirements of developments.

Water Service Areas - Water requirements of developments.

Sewage Service Areas - Effluent discharge capacity of treatment facility.

THE FEASIBILITY OF CONSTRUCTING AN ENVIRONMENTAL INFORMATION SYSTEM

It is not suggested that a regional information bank be created just to deal with environmental impact statements. The information system would have numerous other applications to regional planning.* It may be possible to adapt the information system ABAG has previously considered (BRISC) for application to impact statement review. If an automated information bank cannot be developed, consideration should be given to establishing a reference center to collect and record all available information in the Bay Area relevant to impact statement review.

The establishment of an Environmental Information System (EIS) should not be construed to mean a data bank assemblage with the capability of providing "all" data for any given project. It is absolutely not possible to accumulate all information on all subjects for the entire Bay Region for use in commenting on all projects which might be devised now and in the future. Perhaps it is unlikely that ABAG or any other agency can develop a highly complex and comprehensive EIS in the near future. However, there is a definite need for developing a systematic means for identifying and extracting geographically defined information (e.g., see Appendix C), that has a direct relationship to the evaluation of the potential impacts identified in the project check lists (see Appendix A and B). Without the ability to match project-specific impacts with geographic-specific conditions, ABAG would not be able

*For a description of how an information system - such as the one proposed - has actually been applied to regional planning, consult (25).

(1) determine whether the potential impacts identified by the check list could actually occur within the project's environmental setting, and (2) evaluate the degree and dimension of environmental conditions, particularly with interest to cumulative impacts.

At the minimum, ABAG should have a manual overlay mapping system (a scale of 1:125,000 may be workable) delineating, (1) the Environmental Conditions listed in Appendix C, and (2) the amenity resources discussed in Section VI.

There are many inherent problems in using a map overlay technique for impact assessment, particularly in the case of the accumulative impact of individual projects over time. The map overlay technique can only indicate where a combination of a very limited number of factors occur and, as such, provides a very limited means of determining and evaluating the relative magnitude and significance of the impacts or the dynamics of the impacts over time.

In addition, the development of a spatially/geographically delineated automated EIS should be initially restricted to those areas of critical regional concerns, particularly when a large number of interrelated factors are involved. Such a system is not intended to model specific environmental condition changes in a qualitative sense, but rather to establish and maintain a "quantitative geographical bookkeeping" capability for the region. This would permit ABAG to monitor, tabulate, and compare the impacts of alternative plans, programs, policies, and projects in terms of the geographical influence of their impacts.

VALUATION OF SETTING CONDITION CHANGE

The last steps indicated by the diagram are to identify (1) which of those setting conditions likely to be changed by a project are of regional significance and which are not; and (2) the degree to which they are significant.

The regional clearinghouse has several means available for determining the regional significance of a setting condition change. The most direct means is a comparison between the setting condition changes and the clearinghouse's own adopted plans, programs and policies. To determine how, and to what degree, the changed setting conditions conflict or complement these plans, programs and policies. The significance of the conflict or compatability, identified by such a comparison, depends on how explicitly the values of existing conditions have been assessed and described by the regional clearinghouse. If the particular setting conditions have not been given explicit values in the plans, programs, and policies, then the regional clearinghouse is limited by this procedure to making general, non-specific comments, or no comments.

To minimize this limitation (or avoid it), a regional clearinghouse should conduct or encourage studies that seek to place regional values on environmental and social conditions that are highly likely to be impacted by potential projects. One obvious example of such a study would be to place explicit open space valuations on those privately owned, low slope, undeveloped areas in the path or urban expansion.

A second means of determining regional significance would be offered by the construction of a spatially defined, regional

information system. The recording of the spatial occurrence of a setting condition on a region-wide basis would indicate its rarity or uniqueness. By overlaying a number of setting conditions it is possible to determine and distinguish particular locations in the region which possess rare or unique qualities. For example, an area impacted by a project might be identified as one of two in the region with: (a) an ocean view, (b) indigenous coastal vegetation, and (c) within a half-hour's access from a central city. Computer mapping and tabulation can serve to indicate both the location and relative abundance (or scarcity) of areas with these characteristics.

Dimensions on a setting condition's regional value could also be obtained by surveying the reaction of the regional publics. In its co-ordinative role, the clearinghouse should be knowledgeable about community, private, and public interest groups reviewing impact statements. The comments from these groups could be forwarded to the clearinghouse and combined to form a regional overview. The clearinghouse could also solicit reactions to setting condition changes by such methods as public hearings, circulation of questionnaires, and direct communication with representatives of the affected communities and groups.

By encouraging the participation of regional and community interest groups in the review of impact statements, regional values on setting conditions should become more visible and explicitly defined. These groups should be used to (a) elicit previously unconsidered values about a specific setting condition and (b) to test those values already assigned to a setting condition.

Appendix D presents an example of the number and diversity of Bay Area 'environmental interest' groups that may want to comment on a setting condition change (depending on the type, location and degree of change).

The most decisive means of obtaining community values on setting conditions is by ballot. A trend appears to be developing in the Bay Area and elsewhere in the State to use referendums and initiatives to decide if the potential adverse condition changes of a project are acceptable. The Southern Bay crossing, the Marin aqueduct, the Lucas Valley open space, and residential growth in Livermore and Pleasanton are all recent examples of establishing environmental values by ballot.

The diagram indicates a direct connection between public comment and the regional clearinghouse's adopted plans, programs and policies. The regional values expressed by public reaction to particular setting conditions (both according to kind and location) will have an effect on how the regional clearinghouse evaluates these setting conditions in its future plans, programs and policies.

Another means of considering the regional value of a setting condition is to place it in comparison to the project benefits, asking, "What value would the retention of a setting condition(s) have to be equal to the benefits of the proposed project?" Does the regional clearinghouse or the regional community feel that the retention of the setting condition is worth the cost of foregoing the project's benefits? NEPA and CEQA specifically mention one consideration in evaluating the costs and benefits question, when they state that the costs of

foregoing long term productivity (of setting conditions) should be weighed against the benefits of local short term use.

An additional aspect of regional value consideration is to place it in relative comparison to a project and its stated alternatives. The regional value of a setting condition should be measured in comparative and not absolute terms, asking such questions as which project location or method of operation would effect the least number of setting conditions of regional value, or devalue setting conditions the least.

COMPARISON OF ALTERNATIVES

One of the most commendable aspects of NEPA and CEQA is the requirement that the lead agency consider alternatives to the project -- including the alternative of no project.*

The diagram places the consideration of alternatives in juxtaposition to the initial steps that describe a project's actions and location. The alternatives described in the impact statement (or alternatives not suggested in the impact statement, but proposed by the reviewing agencies) would be reviewed for impact in the same manner as the project proposed by the lead agency.

Usually, the description of the 'no project alternative' in an impact statement is a detailing of the costs or benefits lost if

* A rigorous exploration and objective evaluation of alternative actions that might avoid some or all of the adverse environmental effects is essential. Sufficient analysis of such alternatives and their costs and impact on the environment should accompany the proposed action through the agency review process in order not to foreclose prematurely options which might have less detrimental effects.(30). Consideration of alternatives shall include those capable of substantially reducing or eliminating any adverse impacts, even at the expense of reduced project objectives In addition, the reason why the proposed action is believed by the agency to be the best course of action shall be explained.(40)

a project is not realized, and reads as a defense by the proponent agency of why there should be a project. From the proponent agency's point of view, the decision to invest time and money in an impact statement indicates that the 'no project alternative' has already been rejected by the lead agency.

Because there is an in-built motive to proceed with a project, the potential beneficial aspects of the no project alternative are not vigorously explored, if explored at all, by the lead agency. The absence of a thorough description of the no project benefits (such as long range productivity), obviously limits a reviewer's complete examination and evaluation of a project's alternatives.

The description of costs or benefits lost by the no project alternative should be substantiated in the impact statement. Review of the statement (by the clearinghouse or other agencies and groups) should determine if the basis for predicting the need for the project is accurate; as well as the validity and accuracy of the population trends, consumption patterns, community values, changes in technology, etc., used in determining the need for the project. The discussion of project need should also consider the question of whether the project will satisfy, perpetuate, or promote the need.

In considering alternatives, the principal question is, "Has the lead agency fully explored all possible alternatives?" and particularly, "Has it included in the range of alternatives, those possible alternatives outside the project type of the proponent agency?" Because of the nature of the role of

proponent agencies, they are understandably reluctant, when considering alternatives, to venture out of their own disciplines into areas where they lack expertise. Additionally, in suggesting such alternatives, they risk the potential loss of their agency's participation and the concomitant possibility their vested interest will be pre-empted by another agency.

Usually the exploration of alternatives is limited to two levels of consideration:

- (1) Modification of the project design -- thus in the problem of flood control, open channels are replaced by underground culverts, or
- (2) Relocation of the project -- a highway bypasses a city rather than goes through it.

However, recent guidelines and current interpretations of NEPA and CEQA suggest that in considering alternatives, the range of exploration be expanded to include other modes or means, beyond the normal operational scope of the proponent agency, to accomplish the same objectives. Thus, in a highway project's impact statement, consideration of a mass transit system might be a feasible alternative.

V A REVIEW PROCEDURE

The previous section suggests two basic components for a regional clearinghouse's review procedure:

- (1) A systematic checklist that will:
 - ▶ Factor a project type into its component actions and activities.
 - ▶ Relate the actions-activities to the condition changes they have been demonstrated to produce. (Condition changes selected for inclusion in the checklist should have regional implications. Those specific considerations stated in NEPA, CEQA, and their subsequent guidelines should be incorporated).
- (2) A systematic means of relating the possible condition changes identified by the checklist or by the impact statement to:
 - ▶ The regional clearinghouse's own plans, policies and programs; that is, appraising the significance of the condition changes in terms of regional values.
 - ▶ Those agencies or groups that have designated authority, expertise, or interest in the particular condition. (Co-ordinative role of a clearinghouse).

For the regional clearinghouse to effectively deal with these components, the review procedure should be:

- ▶ Developed in a worksheet format. This could serve as a background reference when reviewing impact statements describing projects of similar characteristics. The recordable format will also document the reviewer's own decision making process.
- ▶ Provide enough basic project impact information to allow the reviewer to quickly narrow the scope of review to the actual condition changes of regional significance.
- ▶ Be organized according to project types and setting types.

One of the major limitations in previous impact review procedures (8,18,22) has been the attempt to include in one format all major project types, the associated actions-activities,

the numerous condition changes that could be related to these actions-activities. The resulting review form was a long listing of factors that were cumbersome to use and too generalized in nature to adequately describe the project, impacted conditions, and the relationships between them.

In comparison, a review form based on a project type (housing, highway development, etc.), has at least three advantages:

(1) It permits the inclusion of a more detailed listing of actions-activities and associated condition changes, and provides a more specific description of the relationships between them.

(2) It is directly relevant to the specific impact statement being reviewed. Before beginning the review process, the reviewer does not have to sort out and eliminate that information relevant to other project types and not relevant to the project under consideration.

(3) It will be easier to update as new information develops and additional impact considerations are identified. It is expected that new guidelines issued by CEQA, OPR, and other agencies will continue to specify new considerations for review. It is also anticipated that the description of inter-relationships between actions-activities and condition changes will be revised to include information revealed by future studies and comments by other agencies and the public.

Some Federal agencies already have realized the need to develop impact assessment procedures for project types. The Bureau of Reclamation is developing an "environmental evaluation system" for "water resource projects" (primarily impoundments).⁽⁹⁾ The Atomic Energy Commission is currently exploring the feasibility of developing a systematic methodology for assessing the impacts of power plants. Representatives of the Environmental Protection Agency have suggested that future CEQA guidelines require each Federal agency to prepare conceptual frameworks for analysis of major types of projects supported by the agency.^(20, Orloff) Appendices A and B to this report are impact review forms developed by the authors for highway and housing projects.

Ideally, the regional clearinghouse should have impact review forms for each of the project types it routinely reviews (i.e., highways, housing, sewage treatment, water supply systems, impoundments, airports, flood control). The scale of this study permitted development of only two impact review forms. The highway and housing forms should permit an adequate testing of the review procedure before the remaining five project types review forms are developed. No particular problems are foreseen in developing similar impact review forms for the remaining five project types. Perhaps, in the future, the existing housing and highway impact forms should be separated into individual forms for urban housing, non-urban housing, urban highways, and non-urban highways.

FORMAT

The review forms are divided into impact categories. The impact categories are a means of grouping the numerous, discretely identifiable, social, economic, and environmental condition changes into an organized format. For example, discrete condition changes, such as increase peak flow, increased turbidity, blockage of stream flow, can be grouped into the category - relationship between project and watershed.

Any project type could be expected to have - to a varying degree - an effect on (or be effected by) each of the impact categories listed on their respective review forms. Often the effect will be insignificantly minor, such as a sewage plant's impervious surfacing impact on an airshed - but nevertheless, a condition change will occur. The kind of effect a project will have on the particular impact category will be described by one or more of the individual condition changes that compose each category.

It should be noted that eight of the ten categories are approximately the same in each impact review form. It appears that all major project types will relate in varying degrees to these same eight impact categories. With few exceptions, projects are located in one or more air or water sheds; can be seen or heard; directly or indirectly modify access patterns or circulation; are sited on earth conditions; pre-empt other uses from site location; and are a component of larger programs. Other categories will be added to the basic eight to include condition changes produced by the project types' unique characteristics.

The listing of condition changes for each of the impact categories is organized according to sequence of occurrence. Initial condition changes are indicated by a black triangle on the left side of the central column. (See Fig. V-A). Secondary condition changes (if they occur) are indented and listed beneath each initial condition change. Likewise, tertiary condition changes (if they occur) are indented and listed beneath each secondary condition change. Condition changes were stated in a manner to permit description of all impacts within a three step sequence. This outline listing of initial conditions change with their associated secondary and tertiary condition changes is a reorganization of the impact network format described earlier (See pages 33-34).

Actions or activities that could generate a change in a particular initial condition are indicated in brackets above the respective condition. Actions-activities that would normally be expected to occur within the construction period of a project are indicated by the symbol (C).

All the condition changes listed describe adverse impacts. Another listing of conditions could have been developed to describe beneficial impacts of a project type. In many cases it is simply a matter of switching the verb to its antonym to convert an adverse condition change to a beneficial condition.

The reviewer of an impact statement could comment on benefits of a project the proponent failed to mention or fully describe. However, the omission or inadequate description of beneficial impacts is a relatively minor occurrence and of slight

consequence when compared to the omission or inadequate description of adverse impacts. It is obvious to expect that the proponent of a project will attempt to be as complete and thorough as possible in describing beneficial impacts of the project. It appears to be questionable whether the values to the region of possible benefits overlooked would be worth the additional review effort by the clearinghouse.

The listing of condition changes is adjoined on the left by a column entitled, 'ABAG Plans, Policies and Programs.'

1. DISPLACEMENT OR PREEMPTION OF EXISTING OR POTENTIAL USES AND/OR USERS

ABAG Plan, Policies, Program	Condition Change	Agencies or groups with designated authority or expertise.
initial ►	Remove residential, commercial, industrial uses.	
secondary	.Uses removed relocate outside former taxing jurisdiction and/or new activities stimulated by highway locate outside taxing jurisdiction. .Decrease actual or potential tax revenues to taxing jurisdiction.	HUD, EDA, SBA DHCD
tertiary	.Increase improvement assessment in special service district from which uses removed. .Decrease local consumer choice by removal of commercial services. .Decrease income to business establishments by removing customers from their trade area. .Force out operations that can not profitably exist with decreased revenue- employment and fiscal effects on community.	
B-1	.Decrease or eliminate external economies to remaining commercial, industrial operations. .Increase price of products or services to region. .Force out operations that can not profitably exist without external economies.	

Figure V-A (from Appendix A, page A-2)

Existing ABAG plans (or plan elements), programs, and policies that relate to any of the potential condition changes listed could be indicated by a representational number in the left column. For example, if a particular condition change is identified as possibly occurring - such as "force out agriculture as a profitable land use" - it can be evaluated by referring it to:

- (1) Adopted ABAG policies D-2 and G-1. "Conservation of agricultural operation where its long-range economic and social contribution as open space exceeds its contribution in other uses."⁽¹⁾ "Soils used for specialty crops and prime agriculture should be retained."⁽⁴⁾ (See Appendix D; pages D-2 and D-3).
- (2) Map 'x' and map 'y' areas designated to be of agricultural value by ABAG because of prime soils, areas in - or potentially for - speciality crops.

- (3) Program z - ABAG program for open space retention; areas of agricultural value.

As mentioned in the previous section, evaluation of potential impacts will depend considerably on the ability to place plan (plan elements), programs, and policies into specific relationships with the condition changes listed.

The right column lists agencies with designated authority or agencies and groups with expertise or special interest in the condition changes described. The condition change - "increased flood hazard in flood prone areas," - would refer to CE (Corps of Engineers), USGS (U.S. Geological Survey), DWR (Department of Water Resources), and FCD (Flood Control District). Agencies listed next to initial or secondary condition changes would (in most circumstances) be related to the subsequent condition changes (and are not repeatedly listed). The listing does not include agencies or groups whose interest, expertise or authority is confined to a specific geographic area, such as the National Park Service, State Lands Commission, Committee for Green Foothills, etc. Normally these agencies or groups would only be interested in reviewing an impact statement if the potential condition changes occurred within their geographic areas of concern or designated authority.

For many of the condition changes listed, reference could be made to maps that would show where particular groups or agencies have their areas of concern or authority and, therefore, would be interested in the condition changes.

Columns could be added to the existing impact review form to indicate both what information would be necessary and the predictive methods available to assess the dimensions of the condition change. For instance, determination of social acceptance of relocatees in a new neighborhood would require socio-economic information on both the relocatees and the neighborhood residents; as well as a survey among the residents of the neighborhood to obtain their reactions to the possibility of the relocatees moving into their own neighborhood. The clearinghouse could inform the lead agency in their review comments what predictive methods are available and what information would be necessary to assess the impacts the statement omitted or inadequately described.

It is anticipated that the impact review forms may have as much application to the preparation of impact statements as they will to the clearinghouse review. If the clearinghouse would submit it's review forms to lead agencies in advance of their impact statement preparation, the agency could then determine which of the condition changes were applicable to it's project and what predictive methods are available and information necessary to conduct an assessment of condition changes. The review forms should be particularly useful to local agencies in assessing the impacts of housing developments since CEQA application has now been broadened to include private projects by the Friends of Mammoth California Supreme Court decision. (43)

The review forms should inform the lead agency of what condition changes it will be considering in review of an impact statement; and the regional clearinghouse's position on the conditions that may be changed by the project as indicated by the relation of condition changes to plan, policies, or programs. The lead agency would then have the opportunity to: (1) indicate which condition changes on the clearinghouse review form might occur and the degree to which they would occur, and (2) directly address how the condition changes may or may not effect the clearinghouse's plans, policies, or programs.

Two points should be stressed concerning the impact review procedure presented in Appendices A and B:

- (1) The review forms will not indicate whether the condition changes it identifies are relevant to the project's potential location. The reviewer must check potential impacts identified by the review form with maps or reports that describe the actual setting of the project's location in order to determine whether the condition changes will occur. Without an automated information bank that can refer to any location in the Bay region, there appears to be no expeditious means to accomplish this task. The task is made considerably easier if the lead agency provides a comprehensive and thorough description of the setting on and around the project location. It could be recommended by the clearinghouse that the impact statement's setting description include all the impact categories listed in the project type's review form.

- (2) All the condition changes listed in the review forms do not comprise the definitive listing of the adverse impacts for either housing or highway projects. Although the present listing of condition changes is based on considerable research,* it is fully expected that additional changes will be added, existing ones that are shown to be irrelevant will be deleted, relationships among condition changes better clarified, and statements rewritten as the forms are actually used and tested in the impact statement review process. The objective of this study was to develop a workable impact statement review procedure. No problems are foreseen in improving the content of the review problems, once the methodology is proven to be a workable procedure.

VI RECOMMENDATIONS

During the course of background and development research for this study, two categories of recommendations emerged:

- A. Policies, programs, and procedures for review of impact statements that ABAG could adopt and implement.
- B. New guidelines for revising the existing impact statement review process of NEPA and CEQA which ABAG could recommend to the Council on Environmental Quality, or the Office of Planning and Research.

RECOMMENDATIONS FOR ABAG POLICIES, PROGRAMS AND PROCEDURES

- (A-1) Review of environmental impact statements should be considered as a component of the ongoing regional planning program.

The ability to conduct a thorough review, and to offer meaningful comments, depends on how well ABAG can relate a project's impacts to it's own programs, policies and plans. Impact statement review should be viewed as a continual means of testing the viability of regional programs. Future planning programs should anticipate being tested by the impact statement review process. The rationale behind regional plans, policies and programs must be defensible where they conflict with the impacts of a project's actions.

- (A-2) ABAG should have impact review forms for all the project types that it routinely reviews.

Impact review forms should be developed for sewage treatment systems, water supply systems, flood control, and airports, in addition to the existing review forms for highway and housing projects.

- (A-3) All agencies and groups involved in the preparation or review of environmental impact statements should be furnished with ABAG's environmental policies and impact review procedure (depending on the relevant project type).

Distribution of these documents will inform the preparer or reviewer of an impact statement of the considerations the regional clearinghouse will be using in making its review. Although a preparer of an impact statement will not directly respond to the considerations outlined in the regional clearinghouse's review policies, he will be aware of these considerations and may find it appropriate to describe how the policies and review considerations of the clearinghouse relate to his project. With knowledge of these considerations and policies, other agencies and groups reviewing an impact statement can then amplify on those points they think necessary, concentrate on points not covered by the clearinghouse review, and exclude those points that duplicate those of the clearinghouse review.

- (A-4) ABAG should develop, or support the development of, a periodic index of all public agency responsibilities and standards concerning environmental quality.

The index should assist in the preparation of impact statements by identifying specific points of consideration and areas of information or expertise. The index would also serve to identify interfaces and gaps in responsibility among the reviewing agencies.

- (A-5) Too often the project proponent or review agency lacks sufficient prior data, and information gathered over a long enough period of time to permit accurate prediction of how a condition may change in response to a project's action-activity.

ABAG should examine the existing development trends within the region in order to determine in advance where specific projects

may locate. Prediction of project types by area should identify the necessary baseline data and information that will have to be collected well in advance of the need for an impact statement, if an accurate assessment of how a condition change may occur is to be made.

- (A-6) To permit greater specificity in the evaluation of impacts (setting condition changes), all ABAG environmental policies should have direct implication, if not specific reference, to an area(s) spatial definition.

These areas should be reflected in the regional plan or plan elements. In particular, all policies specific to amenity resources* should include the spatial definition of the resource and the particular attributes which constitute it's value. It appears that public surveys will be needed to identify the amenity resources and their user publics. Amenity surveys and valuation will be necessary to support the region's open space and recreation plans as criteria for assessing the impacts of future projects. The major problem in maintaining desirable levels of amenity is the definition of their degree of occurrence in geographic dimensions.

- (A-7) Regional clearinghouse review should determine if the project described is a component of a larger program.

If a program does exist, it should be reviewed for it's impact on the region's programs, policies and plans. Determination should be made if the program's impact is significant enough to warrant it's own impact statement. In many cases, the program,

*Amenity refers to the user-perceived attributes of resources or environments - normally including, but not limited to, safety, health, comfort, convenience, esthetics, privacy, social interaction, education, recreation opportunity.

because of its regional implications, will require more intensive review than the project described in the impact statement. It is now well recognized by the Council on Environmental Quality (CEQ) and those state agencies involved in drafting Impact Statement Guidelines, that to achieve the goals that NEPA and CEQA articulate, it is mandatory to assess the impacts of plans, programs, and policies, as well as project-related impacts. A project usually represents an incremental and end-of-the-line implementation of a plan, program, or policy. It is simply not possible to achieve the environmental goals articulated by NEPA and CEQA by narrowly focused review of individual projects, usually conducted on a piecemeal basis.

The authors anticipate, as does CEQ on pages 233-234 of their Third Annual Report, that if a thorough environmental impact assessment is made of plans, programs, and policies, the assessment of the respective component projects will be greatly simplified or, in some cases, be unnecessary.

(A-8) Projects that have been permitted to operate and/or locate in the region (assuming they have complied with NEPA or CEQA) should be monitored over time to determine the actual condition changes generated by the project's actions-activities.

The data collected should be fed into a regional environmental information center. Monitoring of a project's condition changes should aid: (1) the development of improved or new impact prediction devices, (2) in assessing the occurrence of cumulative impacts and land use change within a given setting, and (3) in providing baseline information necessary for future project impact assessment.

The proponent agency would incur the costs of monitoring environmental condition changes. Due to the present lack of quantitative information on environmental impacts, there are very few operational predictive methods that can provide for a low cost assessment to be made of the impacts of future projects. At the present time, quantitative impact assessment is either very costly or impossible due to lack of predictive methodologies. The monitoring process is a means of obtaining the necessary information to develop low cost predictive methodologies for assessing impacts.

- (A-9) ABAG should establish, or support the establishment of, a region-wide environmental information center to assist all agencies and groups in preparing or reviewing impact statements.

Ideally such a center would be computer automated and all spatially definable information would be computer mapped. However, if an automated information bank is not feasible, then at least a central referencing service should be established to minimize the current duplication of information collection efforts, reveal where information gaps exist, and maximize the dissemination of existing information.

- (A-10) ABAG should review the conservation elements local governments are preparing (in response to either CEQA or AB 966 (1972)), to determine their degree of conformity to ABAG's plans, programs, and policies.

If the conservation elements are being developed to satisfy CEQA, they will need to be broadened considerably beyond the narrow scope as presently defined in AB 966. The conservation elements as presently defined in AB 966 do not address the full range of environmental considerations articulated by CEQA and it's subsequent state guidelines.

RECOMMENDATIONS FOR REVISIONS IN THE EXISTING IMPACT
STATEMENT REVIEW PROCESS - (Directed to the Council on
Environmental Quality and the State Office of Planning and
Research)

- (B-1) The National Environmental Policy Act and the California Environmental Quality Act impact statement review process should be modified to permit metropolitan and regional clearinghouses to receive all comments from other reviewing agencies and groups prior to review and comment by the clearinghouses.

Such a modification would probably extend the total review period, but considering the extended time horizon of most projects, the resource commitment, and the potential for significant long term adverse impacts, the additional review time would appear to be warranted. Without this modification of the review process, clearinghouses will be limited in their ability to synthesize and expand the specific comments of special purpose agencies or groups into a regional perspective.

- (B-2) Future National Environmental Policy Act guidelines should require an agency considering a specific action to give public notification on whether an impact statement will or will not be issued (to date only NEPA and GHWA require such notification).

The notification would be similar to California's requirement for a 'notice of intent' or a 'negative declaration.' The California requirement has been demonstrated to have at least two distinct advantages. The notice of intent to prepare an impact statement provides an opportunity at an early stage in the planning process for all interested parties to express concern and provide guidance on the environmental issues identified.

NEPA does provide an opportunity for comment at draft statement stage. However, the planning for the project is further along at this stage than the notice of intent 'state'

of CEQA, and modifications are thus more difficult to make. This is particularly true of long range programs and infrastructural projects; both of which are of direct concern to a regional clearinghouse. When a negative declaration is made, it permits the public and other agencies an early opportunity to disagree on the decision. Such disagreement provides the agency with an early warning of possible error in deciding not to prepare an impact statement. An early warning is preferable to a later court injunction halting an action on the contention that an impact statement should have been prepared.

(B-3) Future NEPA and CEQA guidelines should require that impact statements should be made from two different levels of perspective.

Present impact statements are most often confined to examining a project. The larger programs which contain the project are generally not described in a separate impact statement. A special overview type impact statement should be specified for long term programs, such as a region's five year highway plan or a five year navigation and port development plan, a breeder reactor program or river basin planning. At this higher program level, impact statements should be prepared by an inter-agency team. A particular value of the overview statement would be to place individual projects in clear relation to one another and to the entire program. Though an individual project may not have adverse impacts, the other projects with which it is related, or the larger program of which it is a part, may have major adverse environmental impacts.

(B-4) Future guidelines for NEPA and CEQA should require that all agencies and groups that have reviewed and commented on a particular impact statement receive a copy of the final statement.

The review agencies and groups should be able to see how their comments and the comments of other agencies were responded to in the final statement.

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IMPACT REVIEW FORM FOR HIGHWAYS

IMPACT CATAGORIES

- I. DISPLACEMENT OR PREEMPTION OF EXISTING OR POTENTIAL USES AND/OR USERS.
- II. RELOCATION OF USES AND/OR USERS FROM RIGHT OF WAY LOCATION.
- III. MODIFICATION OF ACCESS PATTERN - CIRCULATION.
- IV. RELATIONSHIP BETWEEN HIGHWAY AND UNDERLYING EARTH CONDITIONS.
- V. RELATIONSHIP BETWEEN HIGHWAY AND WATERSHED.
- VI. RELATIONSHIP BETWEEN HIGHWAY AND AIRSHED.
- VII. RELATIONSHIP BETWEEN HIGHWAY AND AREA WITH VIEW OF RIGHT OF WAY AND TRAFFIC MOVEMENT OR AREA VIEWABLE FROM HIGHWAY.
- VIII. RELATIONSHIP BETWEEN HIGHWAY AND AREA WITHIN SOUND OF TRAFFIC.
- IX. IMPLICATIONS ON ALTERNATIVE TRANSPORTATION SYSTEMS, INFLUENCE ON SURROUNDING LAND USE.
- X. CONTEXT WITH REGIONAL TRANSPORTATION PROGRAMS.

ABAG Plan, Policies,
Program

Condition Change

Agencies or groups with design-
ated authority or expertise.

► Remove residential, commercial, industrial uses.

.Uses removed relocate outside former taxing jurisdiction and/or new activities stimulated by highway locate outside taxing jurisdiction.
.Decrease actual or potential tax revenues to taxing jurisdiction.

HUD, EDA, SBA

DHCD

.Increase improvement assessment in special service district from which uses removed.

.Decrease local consumer choice by removal of commercial services.

.Decrease income to business establishments by removing customers from their trade area.

.Force out operations that can not profitably exist with decreased revenue- employment and fiscal effects on community.

B-1

.Decrease or eliminate external economies to remaining commercial, industrial operations.

.Increase price of products or services to region.

.Force out operations that can not profitably exist without external economies.

.Decrease public and private services to local community, particularly to disadvantaged publics and/or low mobility publics.

HEW, DEO

.Remove employment producing activities and uses.

.Reduce employment and economic multipliers in community (particularly communities with high unemployment and/or depressed economies).

.Reduce employment opportunities, particularly in communities with limited employment diversity.

LABOR, DEO

DHRD

C-3

.Removal of housing, not replaced by comparable amount or type in community.

.Total decrease in community and/or region of housing type (particularly low income housing).

.Increase rents in remaining housing type (particularly to disadvantaged groups).

► Loss of areas used by public for recreational activities or having potential for public recreation.

BOR

DPR

.Increased use of remaining recreational area (public or private)-overcrowding, overuse of areas, degradation of site condition- degrade areas's recreational values.

D-1

► Loss of areas valued for their undeveloped (open space) scenic qualities.

BOR, HUD

DPR

► Loss of potential public acquisition sites for community services.

GSA

.Increase cost of acquiring an alternative site.

.Higher costs for operating community services at alternative site than at site preempted.

► Removal of structures or sites of scenic, architectural, archeological, or historic significance. (indicated on National, State Historic Register).

NPS, CHP

DPR

.Loss of context significance for landmarks that are relocated.

► Loss of unique or highly productive wildlife, fish, or shellfish habitats.

BSFW

DEL

E-2, F-1, F-2

.Loss of habitats of rare or endangered species, species that have spectator, scientific, sport, or educational values of regional significance.

E-2

.Loss of areas for commercial production (shellfish, aquaculture).

II. RELOCATION OF USES AND/OR USERS REMOVED FROM RIGHT OF WAY LOCATION

A - 4

ABAG Plan, Policies, Programs.	Condition Change	Agencies or groups with designated authority or expertise.	
	▶ Loss of context significance in relocation of historic, archeologic, or scenic structures or sites.	NPS, CHP	DPR
C-2, C-1	▶ Relocation costs to residents moved greater than compensation paid. (particularly to disadvantaged groups). .Increased cost of housing (rent, mortgage, insurance, repairs) .Increased cost of living (goods and services) .Increased commute access, time, and expense to employment and services.	HUD, OEO	DHCD
	▶ Social acceptance of relocatees by community/neighborhood in which relocated. .Social barriers- community factionalization, friction. .Isolation and anomie of relocatee.	HUD, HEW	DHCD
	▶ Limited Opportunity for relocatees to use public services (particularly low mobility groups). .Limited access to public services (public transit, health care, educational programs, cultural activities)- particularly in comparison to public service opportunities of previous housing location.	HUD, HEW, OEO	DHCD
C-1, C-2	▶ Sever interpersonal ties of relocatee to former neighborhood/community (family ties, ethnic bonds, neighborhood friendships) .Isolation and anomie of relocatees. .Social disruption of neighborhood from which residents removed. Promote anti-social behavior.		
C-1, C-2	▶ Increased use of existing public services, public areas serving those areas where relocatees settle. .Overcrowding of local schools, decrease quality of education .Overcrowding, overuse of local parks, public recreation areas. .Deterioration of site conditions and facilities- degradation of recreational qualities. .Exceed local health care and welfare services capability. .Contribute or increase congestion on public streets.	HUD, HEW BOR HEW FHWA	DHCD DE DPR PH
C-1, C-2	▶ Relocatees resettled in neighborhoods with less privacy, safety, security and comfort than former neighborhoods. .Promote anti-social behavior	HUD, HEW	DHCD

ABAG Plan, Policies,
Programs.

Condition Change

Agencies or groups with design-
ated authority or expertise.

[elevated, depressed, or groundlevel limited access highway]

► Block or impair access along existing street pattern crossed by highway.

.Impair access to public and private services of residents and patrons within service area. (particularly to low mobility groups).

HEW, OEO
HUD DHCD

.Reinforce or create physical barriers between social groups.

.Sever interpersonal ties within neighborhood (family ties, ethnic bonds, neighborhood friendships- social disruption of neighborhood).

.Discourage social interaction between parts of community separated- promote community factionalization, friction.

.Congest streets that are dead ended or rerouted by highway.

.Congest through streets by diverting traffic from dead ended or rerouted streets

.Increased traffic in proximity to concentrations of pedestrian activity (shopping areas, high density housing developments, schools, hospitals)- increase the risk of pedestrian/vehicle collision.

.Increased traffic noise- particularly activities sensitive to noise (schools, churches, hospitals, theaters).

.Traffic fumes.

.Decrease income to businesses by impairing access from trade area (particularly businesses operating on marginal profits).

SBA DC

.Reduce external economies of transport and/or physical access to commercial and industrial operation separated by highway (particularly to operations existing on marginal profits).

SBA, EDA DC

.Increase time and cost of police, fire and ambulance response to service areas.

DPH

.Disrupt public transit routes.

DOT-UMTA DPW

.Increase cost of service, decrease service area and/or frequency.

► Divide single land uses or resource areas- block or impair access between divided segments.

G-1, D-2

.Prevent or impair efficient agricultural operations (irrigation, stock rotation, fertilizer-pesticide application, harvesting).

DA-ARS ASA CAC

.Force out agriculture as a profitable land use (impacts of agriculture foregone).

.Concentration of livestock on accessible range-overgrazing and range deterioration.

.Divide recreation areas- concentrate public use on accessible segment, under-use of inaccessible segment.

BOR DPR

.Increase use of accessible area to levels where site and facility deterioration occur. Degrade recreational qualities of area.

F-1, F-2, E-2

.Divide wildlife ranges or habitats.

.Confine wildlife populations to segment of former range- concentration of wildlife with consequent overuse and degradation of habitat. Eliminate rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

BSFW DFG

[bridges]

► Block or impair access (boat, pedestrian) along waterway.

CG, CE DNOD, DPR

► Truck and construction equipment traffic on public roads during construction

.Increase traffic loadings- contribute to street congestion.

.Noise and dust impact along fill or excavation haul routes.

EPA DPH

III. MODIFICATION OF ACCESS PATTERNS - CIRCULATION

A - 6

ABAG Plan, Policies
Programs.

Condition Changed

Agencies or groups with designated authority or expertise.

- ▶ Provide new or improved access to previously inaccessible or relatively inaccessible public and private lands. (either directly by road vehicle, or indirectly by permitting off road vehicles, hikers easier or new access points to off-highway lands)

BOR

DPR

F-1, F-2, E-2

- .Disturbance and/or mortality to wildlife.
 - .Displacement of wildlife to other ranges- concentration of wildlife with consequent overuse and degradation of habitat. Elimination of rare or endangered species, significant reduction of population of species that have sport, spectator, scientific, or educational value.
 - .Direct mortality of wildlife by hunting, fishing- over-hunting, over-fishing of easily accessible areas- significant reduction or localized extermination of populations that have sport, spectator, scientific, or educational value.
- .Increase recreational use of public lands to levels where site and facility deterioration occur.(particularly around service areas, access points.
 - .Degrade recreational quality of overused areas.
- .Provide access points for introduction of off-road vehicles.
 - .Trail scars, noise and movement disturbance of vehicles, increased hunting and fishing pressure in remote areas.
- .Promote trespassing on private lands
- .Increase value of private undeveloped lands.
 - .Stimulate or contribute to conversion of undeveloped lands into residential, commercial, industrial, agricultural, silvacultural, mining, private recreation use. (refer to respective project type impact review form).
 - .Force out agriculture, silviculture, private recreation or other open space uses that can not profitable operate or operate on sufficient margin with increased tax on property. (impact of use foregone).
- .Increase forest fire occurrence.

DA-ARS,EDA, ASA, LAO

- ▶ Provide or improve access to relatively undeveloped areas outside urban centers.

HUD, LDA, SBA

DC

A-1

- .Stimulate or increase movement of commercial, industrial use from existing concentrations in urban centers.
 - .Impacts on urban area's tax base, socio-economic composition, support or public services, employment, economic multipliers.
 - .Stimulate further development around area where operation located.
 - .Location of operation and surrounding development it stimulated at conflict with regional open space system and city center concept. Adverse impacts of operation and surrounding development.
- .Induce commercial and industrial operations that are seeking new location in region to locate outside urban centers- loss of potential revenues and employment to urban center.

A-1

- .Stimulate further development around area where operation located.
 - .Location of plant and surrounding development it stimulated at conflict with regional open space system and city center concept. Adverse impacts of plant and surrounding development.

ABAG Plan, Policies
Programs.

Condition Changed

Agencies or groups with designated authority or expertise.

- Increase traffic on highway improved or drawn traffic to new highway constructed.

- .Automobile related services (strip commercial development, gas stations, restaurants, franchise food operations, motels, etc.)

- .Commercial advertising visible from route.

- .Reduce traffic on former or alternative routes to new or improved highway.

- .Reduce property values.

- .Reduce revenues to commercial activities dependent on traffic volume and type. Force out operations that can not profitably exist with decreased traffic- employment, fiscal impact.

- .Increase traffic to levels beyond design capacity (congestion) so that new highway or improvement of existing route required. (impact of new highway or improved highway).

- .Concentrate traffic at access and egress points.

- .Congestion of traffic at access and egress points and streets service them.

- .Increase traffic to congestion levels on highway segments at termini of new or enlarged highway.

- .Require new or enlarged highway for congested segments (impact of project).

IV. RELATIONSHIP BETWEEN HIGHWAY AND UNDERLYING EARTH CONDITIONS

A - 8

ABAG Plan, Policies
Programs

Condition Changed

Agencies or groups with design-
ated authority or expertise.

- G-2 ▶ Roadbed subject to continual deposition from naturally occurring land-
slides, slumps, or rockfalls.

USGS

DMG

.Temporary closure of road for repairs, debris removal.
.Repair costs.

.Maintenance costs. Future costs to install structural treatments
to prevent or reduce reoccurrence.
.Rock fall hazard to vehicles.

[cut slopes
irrigation]

- G-2 ▶ Continual occurrence of landslides, slumps, rockfalls onto roadbed.

USGS

DMG

.Temporary closure of road for repairs, debris removal.
.Repair costs.

.Maintenance costs. Future costs to install structural treatments
to prevent or reduce reoccurrence.

.Rock fall hazard to vehicles.

[fill slopes
embankments]

- G-2 ▶ Continual occurrence of landslides and slumps that undercut and/or
collapse roadbed.

USGS

DMG

.Temporary closure of road or repairs.
.Repair costs.

.Maintenance costs. Future costs to install structural treatments
to prevent or reduce reoccurrence.

V. RELATIONSHIP BETWEEN HIGHWAY AND WATERSHED

A - 9

ADAG Plans, Policies Programs.

Condition change

Agencies or groups with designated authority or expertise.

impervious surfacing
recontoured slopes
drainage channel ways
irrigation (direct application and topsoil saturation)
embankments
vegetation clearing (C)

1► Increased runoff producing sheet and gully erosion, resulting in increased sediments loads and turbidity in water bodies.

USGS, SCS, DSC, WQCB, DWR

E-2, F-1, F-2

.Degrade an estuarine or freshwater wildlife habitat of regional significance.

BSFW

DFG

D-4

.Degrade the quality of water recreation areas (active contact or scenic appeal).

BOR

DPR, DPH

E-1

.Reduction of downstream reservoir's storage supply by sedimentation. (cost of dredging).

1.4 .Sediment shoaling of stream course

CE

DNOD

E-2, F-1, F-2

.Impair or block navigation on navigable streams.

.Impair or block migration or movement fish.

CE

LFCD

E-2, F-1, F-2

.Increase flood hazard in flood prone areas adjacent and upstream of shoaling. (necessitate flood control project- impact of project).

BSFW

DFG

.Increase water temperature- degrade quality of stream as habitat for wildlife, fish.

.Alteration of channel flow producing stream bank and bed erosion.

.Increase sediment plus turbidity loads.

E-2,F-1,F-2,D-4

.Stimulate eutrophic conditions, degrade quality of stream as wildlife and fish habitat. Degrade scenic quality.

BSFW, EPA

DFG

E-1

.Increase cost of water purification for domestic and/or industrial use.

EPA

offsite excavation or cut material disposal
vegetation clearing
grading- recontoured slopes
cuts and fills
construction roads
excavation sites, borrow pits
trenching

2► Exposed slopes of bare earth or decreased vegetation cover (usually confined to construction period) and/or stimulation of landslides and slumps that produce sheet and gully erosion.

USGS, SCS, DSC, WQCB, DWR

.Increased sediment loads and turbidity in water bodies. (refer to 1)

.Silt blockage of groundwater recharge areas- decrease groundwater supply. Possible overdrafting of groundwater.

EPA

vegetation clearing (C)

3► Vegetation debris in water bodies.

EPA, CE, WQCB, DWR

F-1, F-2

.Impair or block migration or movement of fish.

.Impair or block navigation on navigable streams.

.Impair or block public access along stream sources

.Concentrate use to accessible areas-overcrowding or overuse of area.

BSFW,
CE, CG

DFG
DNOD
DPR

D-4

.Stimulate shoaling of stream course (refer to 1.4)

.Degrade the quality of water recreation areas (active contact and scenic appeal).

USGS SCS
BOR

DWR
DPR

bridges
channelways
embankments
fills
retaining walls

4► Constriction of stream flow, increase flood hazard in upstream flood plain.

CE, USGS, DWR, LFCD

.Necessitate flood control measures (impact of project type)

V. RELATIONSHIP BETWEEN HIGHWAY AND WATERSHED

A - 10

ABAG Plans, Policies
Programs.

Condition change

Agencies or groups with designated authority or expertise.

A-9	5	filling impervious surfacing grading- recontoured landforms drainage diversions landscaping	→ Increase flood hazard in flood plains by floodwater absorption capacity in natural absorption areas (wetlands, marshes, swamps). Necessitate flood control measures (impact of project type).	CE, USGS, DWR, LFCB
	6	irrigation saturation of topsoil impervious surfacing recontoured slopes drainage channelization vegetation clearing (c) embankments	→ Blockage of groundwater recharge .Decrease groundwater supply- overdrafting of supply. .Salt water intrusion and contamination of groundwater supply. .Decrease water supply available to surrounding groundwater users.	USGS SCS DWR WQCB
G-2	7	impervious surfacing drainage diversions embankments landscaping recontoured slopes	→ Reduce natural erosion from watershed of beach material .Reduce watershed's contribution of beach sand to the coast's littoral system. .Stimulate or accelerate beach and sea cliff erosion- imperil cliff edge or beach edge development. .Reduce beach area available for public recreation- concentrate use to remaining beaches, overcrowding and overuse or area.	USGS SCS, OSC, DMG CE DNOD DPR
F-1, F-2, E-2	8	Vegetation control and maintenance	→ Toxic chemicals carried by runoff into water body. .Degrade estuarine or freshwater wildlife habitat. .Eliminate or significantly reduce rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.	DA, EPA, ASA, WQCB BSFW DFG

V. RELATIONSHIP BETWEEN HIGHWAY AND WATERSHED.

A - 11

ABAG Plan, Policies
Programs.

Changed Conditions

Agencies or groups with design-
ated authority or expertise.

[
embankments
fills
recontoured slopes
drainage diversions
]

➔ Blockage of surface water and groundwater flows along existing drainage

USGS DWR

F-1, F-2, E-2

.Change vegetational composition upcourse by increasing groundwater saturation and/or level, standing surface water.

.Degrade quality of vegetation as wildlife habitat- eliminate or reduce rare or endangered species, significant reduction in species that have sport, spectator, scientific or educational values.

.Eliminate or reduce vegetational community that is unique or rare in region, loss of aesthetic, scientific or educational values.

.Degrade scenic qualities of vegetation community be evidence of unhealthy or dead vegetation and/or replacement by species with less aesthetic qualities.

BSFW DFG

BOR DPR

.Change vegetational composition downcourse by decreasing groundwater saturation and or level, reduce surface water level (particularly significant in wetlands, bogs, swamps, meadows, marshes).

.Degrade quality of vegetation as wildlife habitat-eliminate or reduce rare or endangered species, significant reduction in species that have sport, spectator, scientific, or educational values.

.Eliminate or reduce vegetational community that is rare or unique in region, loss of aesthetic, scientific, or educational values.

.Degrade scenic qualities of vegetation community by evidence of unhealthy or dead vegetation and/or replacement by species with less aesthetic qualities.

USGS DWR

BSFW DFG

BOR DFG

[
culverts
engineered drainage ways
]

➔ Impair or block migration and/or movement of aquatic biota.

BSFW DFG

F-1, F-2, E-2

.Eliminate or reduce rare or endangered aquatic species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

[
cuts below grade
excavation
]

➔ Release or contamination of groundwater supply.

USGS DWR, WQCB

ABAG Plans, Policies,
Programs

Condition change

Agencies or groups with design-
ated authority or expertise.

[construction roads
grading of site
vegetation clearing
hauling of excavation or fill to or from site]

→ Dust and/or particulate matter on vegetation, structures surrounding construction site or along hauling roads.

.Aesthetically displeasing- particularly along scenic areas, and residential neighborhoods.

EPA

ARB, APCD

[vehicles]

→ Tire and exhaust particles coating of roadside vegetation and structures.

.Aesthetically displeasing roadside view- particularly noticeable if highway passing through scenic area.

EPA

ARB, APCD

DPR

[embankments
landscaping
elevated highway structures
walls, fencing, noise barriers.]

H-2

→ Block or decrease local wind circulation

.Increase local temperatures- climatic discomfort.

.Stimulate or reinforce air inversion.

.Smog formation- eye irritation, respiratory discomfort, vegetation and agricultural crop damage, decrease visibility.

.Increase local humidity- climatic discomfort.

.Decrease atmospheric visibility.

ESSA

ARB, APCD

[vehicles]

H-2

→ Increase severity of smog conditions or generate smog conditions.

.Eye irritation, respiratory discomfort- ailments

.Vegetation, agricultural crop damage.

.Decrease atmospheric visibility.

.Noxious or displeasing odor.

.Smog damage to agricultural crops, to vegetational communities.

EPA

ARB, APCD

HEW

DPH

[vehicles]

H-2

→ Decrease ambient air pollution assimilation capacity.

.Increase cost of air pollution control by commercial and industrial operations- possibly forcing out industrial and commercial operations that can not meet afford cost of installing or maintaining pollution control devices. (economic, fiscal, employment impacts)

EPA

ARB, APCD

SRA/DA

DC

[impervious surfacing]

H-2

→ Increase local temperatures

.Climatic discomfort

.Stimulate or reinforce air inversion

.Smog formation- smog impact

ESSA, EPA, ARB, APCD

[vehicles]

→ Generation of vehicle fumes, and odors (exhaust emission, tire and brake rubber).

.Fumes and odors noticeable neighboring residential and commercial areas.

.Decreased property values.

.Irritation and discomfort to residential inhabitants, commercial workers or patrons.

EPA,

ARB, APCD

HUD

DHCD

HEW

LAO
DPH

VII. RELATIONSHIP BETWEEN HIGHWAY AND AREA WITH VIEW OF RIGHT OF WAY AND TRAFFIC MOVEMENT, OR AREA VIEWABLE FROM HIGHWAY. A-13

ABAG Plan, Policies
Program.

Condition Changed

Agencies or groups with designated authority or expertise.

D-3

[embankments (highway above grade)
berms
elevated highway (on structures)
fences and barriers
landscaping]

➔ Block viewlines along visual corridors (valleys, stream courses, streets).

HUD, BOR, DPR, DHCD

.Sever visual continuity of open space network.

.Fragmentation of open space expanse- degrade aesthetic qualities.

.Isolate open space areas from connection with larger open space systems.

.Fragment image of community or neighborhood as a discrete cohesive unit.

.Disorientation or confusion of visitor or resident.

.Block or reduce view from residential areas or commercial operations that benefit from view.

.Decrease residential and commercial property values, decrease rents.

.Decrease patronage to commercial operations.

.Reduce affiliation to community by residents blocked off by highway.

➔ Block viewlines to landmarks in community from residential areas, recreation areas, and commercial operations that benefit from view.

.Decrease residential and commercial property values.

.Decrease patronage to commercial operations.

➔ Elevated or above-grade highway out of scale with adjacent urban development.

.Highway dominant element in view of community or neighborhood. Scale of highway overpowers scale of community or neighborhood, unattractive contrast between scales.

[vehicle movement]

➔ Visual distraction from pursuit of recreational, residential, commercial activity.

BUR, HUD

DPR, DHCD

➔ Visual disturbance of wildlife on adjoining lands.

BSFW

DFG

Abandonment of habitat, or inhibit reproduction.

.Elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

.Force wildlife out of portion of range- concentration of wildlife with consequent overuse and degradation of habitat.

.Elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

[nightlighting
vehicle reflections
vehicle lights]

➔ Displeasing glare visible in recreational areas or residential areas.

BOR, HUD

DPR, DHCD

BAG Plan, Policies
Program.

Condition Changed

Agencies or groups with designated authority or expertise.

[fill slopes
grading
cut slopes and faces
vegetation clearing]

→ Highly visible erosion and/or bare earth or rock scars.

.Decrease visual appeal of landscape- particularly significant if visible from public recreation area, residential areas, or scenic highway.

HUD, BOR, DPR, DHCD

[landscaping of cut slopes, fill slopes, graded areas
landscaping of median strip and highway shoulders
revegetation of cut slopes, fill slopes, graded areas
revegetation of highway shoulders.]

→ Unattractive contrast between existing vegetation and revegetated or landscaped area.

.Decrease visual appeal of landscape- particularly significant if visible from public recreation area, residential areas, or scenic highways.

HUD, BOR DPR, DHCD

[roadway alignment
cuts
fills
retaining walls, cribs, revetted embankments
drainage way terraces]

→ Unattractive contrast natural landform and engineering features of highway.

.Decrease visual appeal of landscape- particularly significant if visible from public recreation area, residential areas, or scenic highways.

→ Unattractive contrast urban or existing development pattern and engineering features of highway.

.Decrease visual appeal of urban landscape- particularly significant if visible from residential areas, or visible from commercial operations that benefit from view.

HUD, BOR DPR, DHCD

ABAG Plan, Policies,
Programs

Condition Changed

Agencies or groups with design-
ated authority or expertise.

vehicles
construction equipment (C)
blasting (C)
truck hauling (C)

→ Disturbance of surrounding passive recreational activities requiring quiet and serene conditions for their enjoyment.

.Displacement of recreational use to other areas.

.Increased use of these areas to levels where site and facility deterioration occur, overcrowding occurs. Degrade recreational qualities of area.

BOR, HUD

DPR

→ Disturbance of educational, health care cultural activities particularly sensitive to noise (schools, churches, hospitals, sanitoriums, auditoriums, theaters).

HEW, HUD, DPH, DE, DHCD

.Force activity to relocate or install noise suppression devices.

→ Disturbance to operation or patronage of commercial activities requiring or benefiting from quiet surroundings. (office buildings, restaurants, retail shops.

HUD

DHCD, DPH

.Force activity to relocate or install noise suppression devices.

.Decrease property values, decrease rents.

LAO

.Loss of patronage force marginal profit operations out of business.

SBA, EDA

DC

.Decrease worker efficiency- decreased profits, increased cost of goods and services.

C-1

→ Disturbance to surrounding residential settlement.

.Decrease property values, decrease rents.

.Contribute to loss of pride in neighborhood- deterioration of neighborhood.

→ Disturbance to wildlife

BSFW

DFG

.Abandonment of habitat, or inhibit reproduction.

.Elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

F-1, F-2, E-2

.Force wildlife out of portion of range-concentration of wildlife with consequent overuse and degradation of habitat.

.Elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

ABAG Plan, Policies,
Programs.

Condition Changed

Agencies or groups with design-
ated authority or expertise

▶ Decrease public support and use of public transit systems.

DOT-UMTA

.Increase cost of services to remaining users.

.Operation of public transit at cost to public or at increased cost to public.

.Decrease area of service and/or schedule of service to reduce operating losses from decreased use.

.Force public transit users to travel by automobile.

▶ Increased assessed valuation of open space land along or adjacent to new or enlarged highway.

A-1, D-2, A-1

.Force out agriculture, silviculture, private recreation, or other open space land use that can not profitable operate or operate on sufficient margin with increased tax on property. (impact of use foregone and new development type).

DA-ARS

ASA, CAC

A-1, D-1, D-2

▶ Stimulate automobile and truck related services along route, with particular concentrations at access and egress points.

.Displace open space uses.

.Unattractive strip development apparent from highway and from surrounding areas- particularly significant if seen from residential areas, public recreation areas, or other highways.

HUD, BOR

DHCD, DPR

▶ Place alternative modes of transportation at competitive disadvantage (air, ship, pipelines, rail).

DOT

TA

▶ Increase demand for parking at destination points or access plus egress points.

.Inadequate on and off street parking.

.Necessitate construction of parking lots.

.Impacts of parking lots,- removal of open space, structures with cultural significance to community, large open expanses of asphalt. (increase runoff, visual blight, temperature increase).

ABAG Plan, Policies, Programs.	Condition Change	Agencies or groups with design- ated authority or expertise.	
▶ Increase assessed valuation of adjoining or surrounding undeveloped lands.		LAO	
.Force out agriculture or other open space uses that can not profitably operate or operate on sufficient profit margin with increased tax on property.		DA-ARS	ASA
.Decrease supply or increase price of crops to the region's markets.		DA-ARS	
.Loss of areas values from their open space amenities.			
.Loss of areas used by public for recreational activities or having potential for public recreation.- increased use of remaining rec- reational areas.		DOR	DPR
▶ Commercial service (shopping centers) relocate out of urbanized area to service new developments.		HUD	DHCD
.Attraction of new centers of patrons from existing urban areas- reduce profits to services in urban area.		SBA, EDA	
A-1	.Urban sprawl,- commercial service at conflict with regional open space system and city center concept.		

IMPACT REVIEW FORM FOR HOUSING DEVELOPMENTS

IMPACT CATAGORIES

- I. DISPLACEMENT OR PREEMPTION OF EXISTING USES AND/OR USERS FROM SITE.
- II. RELATIONSHIP OF NEW RESIDENTS TO COMMUNITY AND REGION
- III. MODIFICATION OF ACCESS PATTERNS - CIRCULATION
- IV. RELATIONSHIP BETWEEN HOUSING DEVELOPMENT AND UNDERLYING EARTH CONDITIONS,
SITE VEGETATION CONDITIONS
- V. RELATIONSHIP BETWEEN HOUSING DEVELOPMENT AND WATERSHED
- VI. RELATIONSHIP BETWEEN HOUSING DEVELOPMENT AND AIRSHED
- VII. RELATIONSHIP BETWEEN HOUSING DEVELOPMENT AND AREA WITH VIEW OF OR FROM
DEVELOPMENT
- VIII. RELATIONSHIP BETWEEN HOUSING DEVELOPMENT AND AREA WITH SOUND OF RESIDENT'S
ACTIVITIES, DEVELOPMENT CONSTRUCTION, SOUND OF SURROUNDING ACTIVITIES.
- IX. INFRASTRUCTURE AND PUBLIC SERVICE REQUIREMENTS OF PROJECT, INFLUENCE ON
SURROUNDING LAND USE.
- X. CONTEXT WITH REGIONAL HOUSING PROGRAMS.

*LISTING OF ABBREVIATIONS USED IN LEFT AND RIGHT COLUMNS ATTACHED TO END
OF REVIEW FORM

ABAG Plans, Policies,
Programs

Condition Change

Agencies or groups with design-
ated authority or expertise.

	► Occupation of potential transportation corridors. .Increase cost of acquiring improved property. .Impacts of relocating residents. ► Removal of existing housing stock. .Type of housing stock removed- not replaced by comparable amount of comparable housing type. Total decrease in community and/or region of housing type (particularly low income housing).	FHWA	DH
C-2, C-3	.Type of housing stock removed- not replaced by comparable amount of comparable housing type. Total decrease in community and/or region of housing type (particularly low income housing).	HUD, OEO, EDA, DHCD	
D-1	► Loss of areas used by public for recreational activities or having potential for public recreation.	BOR	DPR
G-1, D-2	.Increased uses of remaining recreational areas (public or private)- to levels where overcrowding, overuse of areas, degradation of site condition- degrade area's recreational values. ► Loss of areas valued for their undeveloped (open space) scenic qualities. ► Removal of agricultural land or land with agricultural potential. (particularly prime agricultural soils, specialty crops). .Decrease supply and/or increase price of crops to the region's markets. .Separating adjoining agricultural lands into bounded acreages- prevent expansion of field sizes. .Prevent or reduce future economies of scale in agricultural operations, possibly forcing out agriculture as profitable land use. .Loss of open space amenities. Decrease supply or increase price of crops to the region's markets. ► Loss of potential public acquisition sites for community services. .Increase cost of acquiring an alternative site. .Higher costs for operating community services at alternative site than at site preempted.	BOR	DPR
	► [public housing] ► Removal of existing commercial activities. .Reduce employment opportunities. .Reduce tax base to local government, to taxing districts. ► Removal of structures or sites of scenic, architectural or historic significance. (indicated on National, State Historic Register). .Loss of context significance for landmarks that are relocated.	GSA	
D-2, F-1, F-2	► Loss of unique or highly productive wildlife, fish, or shellfish habitats. .Loss of habitats of rare or endangered species, species that have spectator, scientific, sport, or educational values of regional significance. .Loss of areas for commercial production (shellfish, aquiculture).	BSFW	DFG
		DA-ARS, ASA	CAC
		HUD, EDA, SBA, OEO, DHCD	
		NPS, HUD, CHP DPR	

ABAG Plans, Policies,
Programs

Condition Change

Agencies or groups with designated authority or expertise.

► Loss of sites having unique potential or suitability for commercial or industrial activities.

.Commercial or industrial activities requiring adjacency to transportation corridors (deep water ports, rail lines, major highways). Increase cost of products and/or services to region; location of activity outside region- employment, fiscal effects.

CE, BCDC

.Prevent or reduce external economies possible by location of interdependent operations in proximity to one another. Increase cost of products and/or services to region; location of activity outside region-employment, fiscal effects.

EPA, SBA, HUD

.Preempt areas whose environmental conditions make them inherently more suitable for industrial or commercial activities than other areas in region. Force industry- commerce to locate in areas where adverse environmental impacts will be significantly greater than at site pre-empted.

EPA, HUD, SBA

A-10

► Occupation of airport flight path zones. (existing or potential).

FAA

DAE

G-3

► Coverage of mineral deposits.

USGS, BM

DMG

.Increased cost of construction materials (aggregates, sand) that are transported greater distances from alternative sites- increased construction costs (highways, housing).

II. RELATIONSHIP OF NEW RESIDENTS TO COMMUNITY

B - 4

ABAG Plans, Policies, Programs.	Condition change	Agencies OR groups with designated authority or expertise.	
C1, C-2	► Social acceptance of new residents by the existing community/neighborhood. .Social barriers- community factionalization. .Isolation and anomie of new residents. .Anti-social behavior reaction.	HUD, HEW	DHCD
B-1, C-2	► Limited opportunity for new residents to use public services- specifically low mobility groups that have been relocated into housing development. .Limited access to public services (public transit, health care, educational programs, cultural activities)-particularly in comparison to public service opportunities of previous housing location.	HUD, HEW	DHCD, DPH
B-1	► Limited employment opportunity for new residents in community or adjacent communities.	LABOR	DHRD
A-11, C-2	.Increase cost and time of transportation to work. .Increase traffic loadings on commute highways- contribute to congestion of highways- demand for new or improved highways. ► New residents reinforce social elitism- isolation of community. .Regional factionalization. ► Provide an attraction for migration of inhabitants of existing urban areas to locate outside those urban areas. .Out migration impacts on urban area's tax base, socio-economic composition, support of public services, employment, quality of public education, support of cultural activities.	HUD, HEW	DHCD
C-1, C-2	► Location of project in neighborhoods of high delinquency plus crime rates. .Residents personal security plus safety threatened.	HUD	DHCD
C-1, C-2	► Density, siting and design of project does not permit residents without adequate privacy, security, safety, comfort. .Promote anti-social behavior of residents,- misuse, deterioration of housing conditions, vandalism, increase maintenance plus repair costs.	HUD	DHCD

ABAG Plan, Policies,
Programs.

Condition change

Agencies or groups with design-
ated authority or expertise.

F-1, F-2

- Provide new access to previously inaccessible or relatively inaccessible public and private lands.

- .Disturbance and/or mortality of wildlife by residents, their stray pets, visitors, or the public.
- .Displacement of wildlife to other ranges- concentration of wildlife with consequent overuse and degradation of habitat.
- .Eliminate rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.
- .Increase use of accessible area to levels where site and facility deterioration occur. Degrade recreational qualities of area.
- .Promote trespassing on private lands.

BSFW

DFG

fences
structures
security services

- Deny or impair access to public lands (particularly shorelines, beaches, tidelands).

AG

- .Concentrate use to public and private lands accessible.
- .Increase use of accessible areas to levels where site and facility deterioration occur, overcrowding occurs. Degrade recreational qualities of area.
- .Promote trespassing on private lands.

BOR

DPR

- Block or inhibit the use of wildlife accessways through or adjacent to site.

BSFW

DFG

- .Confine wildlife population to segments of former range.
- .Concentration of wildlife with consequent overuse and degradation of habitat. Eliminate rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

- Reinforce or create barriers to physical interaction within community.
- .Discourage social interaction, promote community factionalization.

HUD, HEW

DHCD

- Increase traffic on public roads and highways servicing the development.

FIIWA, DPW, MTC

- .Increase traffic to congestion levels- demand for new or improved highways.
- .Traffic on public roads and highways during construction of project (trucks hauling excavation material- fill material)
 - .Increase traffic loadings- contribute to highway congestion.
 - .Noise and dust impact along haul routes.

ABAG Plans, Policies,
Programs.

Condition changed

Agencies or groups with design-
ated authority or expertise.

	irrigation septic tank seepage cut and fill loading of slope with structures		
G-2	▶ Stimulation of landslides, slumps on public roads, rupturing of public service pipes and cables. .Cost of repair or maintenance.	USGS	DMG
G-2	▶ Siting of structure and roads on unstable slopes- prone to landslides. .Disaster relief. Public hazard.	USGS	DMG
G-2	▶ Siting of structures under slopes prone to landsliding, mudsliding. .Public hazard. Disaster relief.	USGS	DMG
G-2	▶ Siting of structures and roads on cliffs or dunes that are actively eroding. .Necessitate cliff stabilization. .Reduce amount of naturally eroding material carried into the coast's littoral system- beach erosion, stimulate or increase cliff erosion. .Unattractive structural modifications visible from public recreation areas or scenic highways. .Imperil cliff edge development, repair of public services-blighted conditions of abandoned structures, public demolition.	USGS, CE	DMG, DNOD
G-2	▶ Siting of structures on historically active fault zones, areas of high seismic shake potential, liquefaction potential. .Public hazard. Disaster relief, repair of public services.	USGS	DMG
	▶ Increase forest or brush fire hazard by suppression of fire in those vegetation types where fire a naturally reoccurring factor. .Cost of fire suppression and control. .Disaster relief.		DF, LFD
	landscaping ▶ Introduction of vegetation which will spread onto adjoining lands. .Weed control on grazing and croplands. .Degrade quality of indigenous vegetation communities for educational, scientific, and recreational use.	DA	ASA

ABAG Plans, Policies,
Programs.

Condition Change

Agencies or groups with designated authority or expertise.

- [irrigation saturation of topsoil]
 [impervious surfacing]
 [recontoured slopes]
 [drainage channelization]
 [vegetation clearing (C)]
 [embankments]
- 1 → Blockage of groundwater recharge

USGS

DWR

- 1.1 .Decrease groundwater supply- overdrafting of supply
 .Salt water intrusion and contamination of groundwater supply.
 .Decrease water supply available to surrounding groundwater users.

- [impoundments]
 [impervious surfacing]
 [drainage diversions]
 [embankments]
 [landscaping]
 [recontoured slopes]
- 2 → Reduce natural erosion from watershed of beach material.

USGS, CE

DMG, DNOD

- .Reduce watershed's contribution of beach sand to the coast's littoral system.
- 2.1.1 .Stimulate or accelerate beach and sea cliff erosion- imperil cliff edge or beach edge development.
 .Reduce beach area available for public recreation- concentrate use to remaining beaches, overcrowding and overuse of area, degrade site condition plus area's recreational values.

- [septic tanks]
- 3 → Seepage from septic tanks into groundwater or surface water bodies.

USGS, SCS

WQCB

- .Contamination of groundwater supply.
 .Contamination of public water supply.
 .Increase cost of water purification for domestic or industrial use.
 .Contaminate water body for recreational contact uses.
 .Degrade quality of water a fish or wildlife habitat.
 .Stimulate eutrophic conditions in water bodies downstream of project site.
 (refer to 7.1)

EPA, DPH, WQEB, DWR
EPA, DPH, WQCB, DWRDPH, DPR
DFG

EPA DPH, WQCB

- [wells]
- 4 → Overdrafting of groundwater supply (withdrawal greater than replenishment).

USGS

DWR

- .Salt water intrusion and contamination of groundwater supply.
 .Differential subsidence of groundlevel.
 .Structural damage
 .Salt water penetration of estuarine or freshwater habitats- degradation of habitat quality.

USGS, EPA DWR, DPH

DFG

- [fertilizer application]
- 5 → Fertilizers or nutrients carried by runoff into water body.

DA, EPA, ASA,

WQCB

- .Stimulate eutrophic conditions in water bodies.
 (refer to 7.1)

ABAG Plans, Policies,
Programs.

Condition Change

Agencies or groups with design-
ated authority or expertise.

D-3	6	fences structures landscaping Block or impair access along water courses	.Block accessways of wildlife- concentration of wildlife on portion of former range-over use and degradation of habitat. .Block accessways to recreational use- concentration of .Use to accessible area- overcrowding, overuse and degradation of area's recreational quality.	BSFW	PFG DPR
F-1, F-2, E-2 D-4	7	direct withdrawl impoundments drainage diversions landscaping recontoured slopes embankments, walls Directly or indirectly decreasing stream volume and rate	7.1 .Stimulate eutrophic conditions in water bodies downstream of project site. .Degrade quality of water body as wildlife or fish habitat. .Degrade quality of water recreation areas (active contact or scenic appeal) .Produce noxious odors. .Contaminate public water supply. .Increase cost of water purification for domestic and/or industrial use.	USGS, EPA	DWR, WQCB
F-1, F-2, E-2		.Salt water penetration of surface water bodies. .Degrade quality of water body as wildlife or fish habitat. .Contaminate water body as supply of domestic, agricultural or industrial water.	.Salt water intrusion of groundwater supplies. .Contaminate groundwater as supply of domestic, agricultural or industrial water.	EPA	DPH, WQCB DWR, WQCB
F-1, F-2, E-2		.Inhibit migration or movement of fish and other aquatic biota. .Degrade quality of water body as a wildlife or fish habitat.- elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational value.	.Decrease waste water assimilation capacity downstream- concentration of water pollutants.	BSFW	DFG
F-1, F-2, E-2		.Degrade quality of water body as wildlife or fish habitat- elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational value. .Contaminate water body as a supply of domestic, agricultural, or industrial water. .Increase cost of water purification for domestic, agricultural, or industrial use.	.Increase estuarine salinity- degrade estuary as wildlife or fish habitat.- elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational value- reduce population of species that have commercial value.	EPA	WQCB, PDH DWR
F-2, F-1, E-2		.Decrease sand transport to coastal littoral system- stimulate or increase beach and cliff erosion. (refer to 2.1.1) .Change vegetational composition downstream (wetlands, bogs, swamps, meadows, marshes).	.Degrade quality of vegetation as habitat for wildlife- elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational value. .Reduce population of species that have commercial value. .Eliminate vegetational communities that have scenic, scientific, or educational values.	BSFW	DFG
F-2, F-1, E-2		.Reduction of waterbody level- .Exposure of bank or bottom conditions with low recreational appeal- degrade quality of water body recreation areas (both active contact and scenic appeal).		USGS, CE	DNOD
F-2, F-1, E-2				BSFW	DFG
F-2, F-1, E-2					DPR
F-2, F-1, E-2					DPR

ABAG Plans, Policies
Programs.

Condition change

Agencies or groups with design-
naed authority or expertise.

		bridges impoundments channelways embankments fills retaining walls		
A-9	8	Constriction of stream flow, increase flood hazard in upstream flood plain. Require flood control measures (impact of project type)	USGS, CE, SCS, DWR, LFCD	
		filling impervious surfacing grading- recontoured landforms drainage diversions landscaping		
A-9	9	Increase flood hazard in flood plains by reducing floodwater absorption capacity in natural absorption areas (wetlands, marshes, swamps). .Require flood control measures (impact of project type)	USGS, CE, SCS, DWR	
A-9	10	Siting of structures in flood plain and/or areas below water impoundment where flooding or dam failure would pose a hazard. .Require flood control measures (impact of project type)	USGS, CE, SCS, DWR, LFCD	
		impervious surfacing (including roofs) recontoured slopes drainage channel ways irrigation (direct application and topsoil saturation) embankments vegetation clearing (r)		
	11	Increased runoff producing sheet and gully erosion, resulting in increased sediment loads and turbidity in water bodies.	USGS, SCS, DSC, WQCB, DWR	
D-2, F-1, F-2		.Degrade an estuarine or freshwater wildlife habitat of regional significance. .Degrade the quality of water recreation areas (active contact or scenic appeal). .Reduction of downstream reservoir's storage supply by sedimentation. (cost of dredging).	BSFW	DFG
	11.4	Sediment shoaling of stream course .Impair or block navigation on navigable streams. .Impair or block migration or movement fish .Increase flood hazard in flood prone areas adjacent and upstream of shoaling. .Increase water temperature- degrade quality of stream as habitat for wildlife, fish. .Alteration of channel flow producing stream bank and bed erosion (refer to) .Stimulate eutrophic conditions, degrade quality of stream as wildlife and fish habitat. Degrade scenic quality. .Increase cost of water purification for domestic and/or industrial use.	USGS, SCS	DWR
E-2			USGS, SCS	DSC
			LE	DNOD
			BSFW	DFG
			USGS, SCS, CE, DWR, LFCD	
F-1, F-2, E-2			EPA, BSFW, WQCB, DFG	
			USGS, SCS	DWR
F-1, F-2, E-2				DWR, WQCB
			EPA	

ABAG Plans, Policies
Programs.

Condition change

Agencies or groups with design-
ated authority or expertise.

[vegetation clearing
grading- recontoured slopes
cuts and fills
construction roads
excavation sites, borrow pits
trenching]

- 12 → Exposed slopes of bare earth or decreased vegetation cover (usually confined to construction period) producing sheet and gully erosion.

USGS, SCS, DSC, WQCB, DWR

.Increased sediment loads and turbidity in water bodies.
(refer to 11)

EPA

.Silt blockage of groundwater recharge areas- decrease groundwater supply.
Possible overdrafting of groundwater.

[impervious surfacing (including roofs)
recontoured slopes
drainage channel ways - or direct channelization of flow
irrigation (direct application and topsoil saturation)
embankments
vegetation clearing (<)]

- 13 → Increased runoff, resulting in change of stream flow dynamics

USGS, SCS, DSC, DWR

.Stream bed and bank erosion

.Increased sediment loads and turbidity in water bodies.
(refer to above)

.Stimulate or increase stream bank erosion- imperil existing develop-
ment on stream banks.

.Increased size of stream peak flow-increase flood hazard in flood prone
areas downstream of project site.

.Require flood control measures (impact of project type)

.Decrease estuarine salinity- degrade quality of estuary as wildlife or
fish habitat.

BSFW

DFG

F-1, F-2, E-2

[vegetation clearing (<)]

- 14 → Vegetation debris in water bodies.

USGS, SCS, CE, WQCB, DF

E-2

.Impair or block migration or movement of fish.

.Impair or block navigation on navigable streams.

.Impair or block public access along stream sources.

.Concentrate use to accessible areas-overcrowding or overuse of area.

DPR

.Stimulate shoaling of stream course (refer to 11.4)

.Degrade the quality of water recreation areas (active contact and scenic
appeal)

DPR

ABAG Plans, Policies,
Programs

Condition change

Agencies or groups with design-
ated authority or expertise.

[construction roads
grading of site
vegetation clearing
hauling of excavation or fill to or from site]

➔ Dust and/or particulate matter on vegetation, structures surrounding construction site or along hauling roads.

EPA ARB, APCD

[embankments
landscaping
structures
walls, fencing]

H-2 ➔ Block or decrease local wind circulation

ESSA-EPA ARB, APCD

- .Increase local temperatures- climatic discomfort.
- .Stimulate or reinforce air inversion.
- .Smog formation- eye irritation, respiratory discomfort, vegetation and agricultural crop damage, decrease visibility.
- .Increase local humidity- climatic discomfort.
- .Decrease atmospheric visibility

HEW DPH
DA ASA, CAC

[vehicles
incineration]

H-2 ➔ Increase severity of smog conditions.

EPA ARB, APCD
HEW DPH

- .Eye irritation, respiratory discomfort- cardio-respiratory ailments
- .Vegetation, agricultural crop damage.
- .Decrease atmospheric visibility, displeasing discoloration.
- .Noxious or displeasing odor.
- .Paint darkening, rubber deterioration, metal corrosion.

[vehicles
incineration]

H-2 ➔ Decrease ambient air pollution assimilation capacity.

EPA ARB, APCD

- .Increase cost of air pollution control by commercial and industrial operations- possibly forcing out industrial and commercial operations that can not meet afford cost of installing or maintaining pollution control devices. (economic, fiscal, employment impacts)

[structures
impervious surfacing]

H-2 ➔ Increase local temperatures

ESSA ARB, APCD

- .Climatic discomfort
- .Stimulate or reinforce air inversion
- .Smog formation

➔ Impair or prevent existing or future agricultural operations by prohibiting use of pesticides or fertilizers that could be wind born to housing development.

EPA, HEW ARB, APCD
ASA, DPH

G-1, D-2

- .Force out agricultural operations that are either completely dependent on pesticides and fertilizers for crop production or exist on marginal profits that would be lost if pesticides or fertilizers not applied.
- .Decrease supply and/or increase price of crops to the region's markets.
- .Loss of open space amenities.

ABAG Plans, Policies,
Programs

Condition change

Agencies or groups with designated authority or expertise.

► Impair or prevent existing or future industrial or commercial operations by establishing emission levels to prevent the occurrence of smoke, fumes, particulate matter in the housing development area.

.Force out industrial operations or commercial operations that can not meet emission standards and/or exist on marginal profits that would be lost if standards were met.

.Impacts on tax base, employment, economic growth.

EPA, HEW, ARB, APCD, DPH

ABAG Plans, Policies,
Programs

Condition change

Agencies or groups with design-
ated authority or expertise.

- Impair or prevent existing or future commercial, industrial, transportation operations that are visually displeasing (eyesores) visible from the housing development.

HUD

DHCD

.Force out operations which can not be adequately screened, or redesigns substituted, or exist on marginal profits that would be lost if visual standards were met.

.Impacts on tax base, employment, economic growth.

.Impact of setting performance standards or zoning for area in view from housing development.

- Structures at unattractive architectural contrast with surrounding structures of community. (Housing units out of scale with neighborhood. Housing units conflict in style, color, building materials, size with architectural character of neighborhood).

HUD

DHCD

.Decrease attractiveness of community

.Decrease property values of surrounding neighborhoods.

[structures
fences
landscaping
vehicles]

- Block viewlines to scenic attractions from public viewing areas (highways, public recreation areas.)

BOR

DPR

.Concentrate recreational use to areas where scenic attractions visible.

.Overcrowding of area, overuse and deterioration of area- degradation of recreational qualities.

- Block viewlines to scenic attractions from commercial attractions that directly benefit from the view for their patronage.

.Decrease profits to operation. Force out marginal operations.

.Decrease property value, rents to income properties.

- Block view lines of scenic attractions from existing residential units.

HUD

DHCD

.Decrease property values

.Decrease rents to income properties

[vehicles
residents, visitors]

- Visual disturbance of wildlife on adjoining lands.

BSFW

DFG

F-1, F-2

.Abandonment of habitat, or inhibit reproduction

.Elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

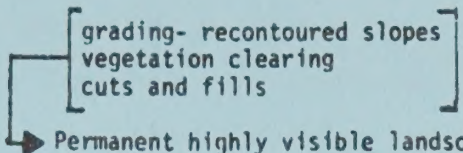
F-1, F-2

.Force wildlife out of portion of range- concentration of wildlife with consequent overuse and degradation of habitat.

.Elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

ABAG Plans, Policies,
Programs

Condition change

Agencies or groups with design-
ated authority or expertise.

[grading- recontoured slopes
vegetation clearing
cuts and fills]

► Permanent highly visible landscape scars that vividly contrast with surrounding landscape.

.Decrease visual appeal of landscape from public viewing areas (public recreation areas, highways). Degradation of areas recreational value.

BOR

DPR

A-1

► Siting of development in open space area that forms vivid edge of community and distinguishes community from adjacent communities.

.Blurring of community definition as a distinguishable unit- urban sprawl.

HUD, BOR

DPR

ABAG Plans, Policies, Programs. Condition Change

Agencies or groups with designated authority or expertise.

- Impair or prevent existing or future commercial, industrial, transportation operations that produce displeasing or annoying noises that are or would be audible in housing development.

EPA, HUD, DPH, DHCD

.Force out operations that either can not be adequately silenced, quieter activities substituted, or exist on marginal profits that would be lost if sonic standards were met.

.Impacts on tax base, employment, economic growth.

.Increased transportation costs and time.

residents, visitors
vehicles
pets
blasting (c)
construction equipment (C)
truck hauling (C)

- C-1 ► Disturbance of surrounding passive recreational activities requiring quiet and serene conditions for their enjoyment.
- C-1 ► Disturbance of educational, health care, cultural activities particularly sensitive to noise. (schools, churches, hospitals, sanatoriums, auditoriums, theaters)
- Disturbance to operation and/or patronage of commercial activities requiring or benefiting from quiet surroundings. (office buildings, restaurants, retail shops).
- C-1 ► Disturbance to surrounding residential settlement.
- Disturbance to wildlife
- F-1, F-2 .Abandonment of habitat, or inhibit reproduction.
.Elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.
- F-1, F-2 .Force wildlife out of portion of range- concentration of wildlife with consequent overuse and degradation of habitat.
.Elimination of rare or endangered species, significant reduction in population of species that have sport, spectator, scientific, or educational values.

EPA DPR

EPA, HEW DPH

EPA, HUD DPH

EPA, HUD DPH

BSFW DFG

ABAG Plan, Policies,
Programs.

Condition Change

Agencies or groups with designated authority or expertise

► Public services required from local government (not supplied by special service districts)

.Public education, public safety- police fire, health care, welfare, water service, sewage service, trash collection, maintenance of development's dedicated roads, parks and recreation, administration. Cost of public services provided to housing development by local government greater than it receives in revenue from property tax on the housing development.

HEW, FHWA, DE, DH, DWR, DPH
DHCD

LAO

.Capital costs to local government- enlarging or rerouting streets to connect with project. Sewer, water rerouting to connect. Fire and/or police station- new schools.

FHWA, EPA, DH, DWR, DHCD

► Require construction of new or enlargement of existing infrastructural systems.

.Impacts of project type required- sewage system, highways, water, power (refer to respective impact form).

.New or enlarged infrastructural system's capacity in excess of housing development demand- encourage additional housing development or other project types to fill out system to its new capacity.

.Impacts of additional housing or other project types (refer to respective impact form for project type).

► Increased use of existing public services, public areas.

.Overcrowding of local schools, decrease quality of education.

HEW DE, DR

.Overcrowding, overuse of local parks, public recreation areas.

BOR DPR

.Deterioration of site conditions and facilities- degradation of recreational qualities.

.Exceed local health care and welfare services capability.

HEW

.Contribute or increase congestion on public streets.

FHWA DH

.Sewage contribution to waste water service systems that are in need of new operations or expansion to meet desirable (or required) water quality standards.

EPA, WQCB, DWR, DR

.Increase water demand on water service systems that have experienced or anticipate experiencing water shortages.

DWR, DR

.Increase solid waste disposal

DPH

► Creation of special assessment districts to provide community services (water, sewage, utility).

LAFCO DR

.District unable to raise enough revenue to provide and/or maintain service necessary, local government forced to assume the service obligation.

.Scattered smog scale, inefficient facilities.

► Community services provided by existing special services district.

HUD DR, PHCD

.Cost of extending services to housing development- increased assessment or tax rate to other users- not in the housing development.

APPENDIX C

ENVIRONMENTAL CONDITIONS

A. Possible Constraints to Project Development

1. Hydrologic

- Stream-estuarine-ocean pollution rating
- Pollution assimilation capacity
 - Areas of poor circulation
 - Outfall plume mapping
 - Thermal conditions
- Areas of navigational difficulty
- Areas of saltwater intrusion
 - Surface
 - Groundwater
- Areas of recorded flooding
 - Tidal-tsunami
 - Stream-river overflow

2. Geologic-Pedologic

- Seismic impact zones
 - Fault zone
 - Subject to liquefaction or intense shaking
- Landslide slump prone areas
- Areas of subsidence
- Areas of unstable bearing condition
 - Subsidence
 - Shrink swell
- Soils of low filtration capacity
- Areas subject to severe erosion
 - Cliff, sheet, gully, dune

3. Biotic

- Areas of high forest-brush fire potential
- Overaged, relic, disease prone communities subject to elimination
- Areas of low revegetation potential

4. Atmospheric

- Topographic-cover noise amplification
- Storm exposure-wind damage
- Fog pattern
 - Aviation
 - Highway
- Air pollution assimilation capacity
 - Inversion mapping
 - Wind patterns
 - Ambient pollutant load
- Noise patterns

B. Environmental Assets That May be Adversely Impacted by Project

1. Hydrologic

- Ground water reservoirs
- Potable surface water supplies
- Agricultural and industrial water supplies
- Aquifer recharge areas
- Watershed protection areas
- Highly productive water habitats
- Navigable waterways
- Recreation waters
 - Quality for active participation
 - Scenic quality, passive recreation
- Flood overflow, dissipation areas
- Potential reservoir sites

2. Geologic-Pedologic

- Soils of unique agricultural potential, specialty crops
- Highly productive soils
- Mineral deposits
- Unique landforms
- Highly visible/scenic landforms
- Unique geologic formations
- (Erosion) Sources of beach sand

3. Biotic

- Relatively undisturbed (virgin) communities
- Rare or endangered species habitat/communities
- Highly productive habitats for popular or sport species
- Highly productive habitats for commercially valuable species
- Waterfowl refuges
- Highly productive timber and grassland communities
- Areas of high recreational potential
 - Active pursuits
 - Scenic appeal

4. Atmospheric

- Storm, wind protection/ sheltered areas
- Exceptional growing season
 - Length, intensity
- Climatic conditions favorable to specialty crops
- Favorable recreation climate
- Areas of Quiet

5. Cultural Features (National or State Register)

- Historic
- Archeological
- Architectural

The purpose of this study is to investigate the effects of the proposed system on the performance of the system. The study is divided into two main parts: a theoretical analysis and an experimental evaluation. The theoretical analysis is based on the principles of the system and the results of previous studies. The experimental evaluation is based on the results of a series of experiments conducted under controlled conditions. The results of the study are presented in the following sections.

The first part of the study is a theoretical analysis of the system. This part is based on the principles of the system and the results of previous studies. The second part of the study is an experimental evaluation of the system. This part is based on the results of a series of experiments conducted under controlled conditions. The results of the study are presented in the following sections.

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APPENDIX D

SELECTED ABAG ENVIRONMENTAL POLICIES

A. Infrastructure Related Policy

1. "Bay Area and communities should be organized into a city-centered region. Accordingly urban growth in the region should be guided into or around existing or new communities." (Source 1, p. 23)
2. "Policies for water, sewage, and transportation should be coordinated to guide the timing, location, growth and wherever necessary the limits of urban development." (Source 1, p. 23)
3. "Multiple use should be encouraged for the functions of water supply, storage, treatment, disposal, recreation, and flood control." (Source 1, p. 21)
4. "Discourage public water and sewer services to scatter development." (Source 1, p. 21)
5. "Control on private water systems and individual sewerage treatment facilities to discourage scattered small scale developments." (Source 1, p. 21)
6. "Pending development of alternative means of disposal, identify sufficient open space for solid waste disposal needs." (Source 2, p. 18)
7. "Channel all liquid wastes through adequate facilities and reduce the number of random discharges." (Source 1, p. 21)
8. "Water should be reclaimed or returned to the land for agricultural or recreational purposes where possible." (Source 1, p. 21)
9. "Avoid costs of further flood control protection by using flood plains and drainage channels as open space." (Source 1, p. 21)
10. "Conserve airport clear zones." (Source 2, p. 18)
11. "Need for long distance commuting should be reduced." (Source 1, p. 23)

B. Community Well-being Related Policy

1. "Provide a physical, social, economic and cultural environment which maximizes the opportunities for all segments of population." (Source 1, p. 24)

C. Housing Related Policy

1. "All persons in the nine-county Bay Area should have the opportunity of obtaining decent, safe, sound, and adequate shelter meeting their household needs in the neighborhoods that are satisfying to them." (Source 3, p. 6)
2. "Hardships suffered by dislocated, particularly low income households, should be minimized." (Source 3, p. 6)
3. "Planned housing construction should be adequate to meet the region's needs based on growth projections and the replacement of housing lost through demolition, particularly that arising from public works of urban renewal projects." (Source 3, p. 6)

D. Recreation/Open Space Related Policy

1. "Provide protection of (regionally significant) environmental features:
 - a. Major ridges
 - b. Bay
 - c. Waterways, floodplains
 - d. Major recreation areas
 - e. Ocean coastline
 - f. Selected bay and river shoreline
 - g. Areas of outstanding natural attraction
 - h. Strategic areas to guide urban expansion

(Proximity to urban area increases significance of protection [for all of the above].) (Source 1, p. 20)
2. "Conservation of agricultural operation where its long-range economic and social contribution as open space exceeds its contribution in other uses." (Source 4, p. i.6)
3. "Everyone of the natural waterways and creeks in the region should be treated as part of the permanent open space system." (Source 1, p. 21)
4. "Regional waterways should be adequate enough to permit human water contact activities." (Source 1, p. 25)

E. Hydrologic Related Policy

1. "Water supply lands around existing and proposed reservoir sites should be safeguarded." (Source 1, p. 21)

The first part of the report discusses the background of the project and the objectives of the study. It also outlines the methodology used for data collection and analysis.

The second part of the report presents the results of the study, including the findings from the data analysis and the conclusions drawn from the research.

The third part of the report discusses the implications of the findings and provides recommendations for future research and practice.

The fourth part of the report provides a summary of the key findings and conclusions of the study.

The fifth part of the report provides a list of references and a list of figures and tables.

The sixth part of the report provides a list of appendices and a list of footnotes.

The seventh part of the report provides a list of acknowledgments and a list of contact information.

The eighth part of the report provides a list of abbreviations and a list of symbols.

The ninth part of the report provides a list of definitions and a list of terms.

The tenth part of the report provides a list of references and a list of figures and tables.

The eleventh part of the report provides a list of appendices and a list of footnotes.

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The fourteenth part of the report provides a list of definitions and a list of terms.

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The sixteenth part of the report provides a list of appendices and a list of footnotes.

The seventeenth part of the report provides a list of acknowledgments and a list of contact information.

2. "Conserve and manage water areas needed for fish and marine life production both for commercial and sport fishing." (Source 2, p. 18)
3. Refer to C-4. above.

F. Biotic Related Policy

1. "Provide a suitable habitat for indigenous forms of wildlife." (Source 1, p. 25)
2. "Set aside selected areas of flora and fauna for their ecologic, biotic, and research and education purposes." (Source 2, p. 18)

G. Geophysical Related Policy

1. "Soils used for specialty crops and prime agriculture should be retained." (Source 1, p. 20)
2. "Protect from development unstable soil areas such as slide areas and areas too steep for urban development." (Source 2, p. 18)
3. "Conserve and manage lands used for production of minerals (sand, gravel, salt, etc.) and provide for appropriate transitional uses upon exhaustion of the resources or upon determination of an incompatible use." (Source 2, p. 17)

H. Atmospheric Related Policy

1. "Sources of air pollution that cannot be treated should be placed where their contact with urban areas can be minimized." (Source 1, p. 25)
2. "Regional and urban areas should be planned and managed to minimize pollution causing processes." (Source 1, p. 25)

ABAG POLICY SOURCES

1. Regional Plan 1970-1990 (Approved by General Assembly, July 30, 1970).
2. Regional Open Space Element (Supplemental Report, RP-3, October 1969).
3. Regional Housing Study (Supplemental Report RA-4, October 1969).
4. Agricultural Resources Study (Supplemental Report IS-6, August 1969).

For the purpose of this study, the following definitions were used:

1. Definition of the study

2.1.1. Definition of the study

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APPENDIX E

ABBREVIATIONS OF STATE AND LOCAL AGENCIES WHICH MAY HAVE AUTHORITY, EXPERTISE OR SPECIAL INTEREST IN REVIEWING IMPACT STATEMENTS (NOT A DEFINITIVE LISTING)

AG - Attorney General
APCD- Air Pollution Control District
ARB - Air Resources Board
ASA - Agriculture and Services Agency
CAC - County Agricultural Commissioner
DAE - Department of Aeronautics
DC - Department of Commerce
DE - Department of Education
DF - Division of Forestry
DH - Division of Highways
DHCD- Department of Housing and Community Development
DHRD- Department of Human Resources Development
DMG - Division of Mines and Geology
DNOD- Department of Navigation and Ocean Development
DPH - Department of Public Health
DPR - Department of Parks and Recreation
DPW - Department of Public Works
DR - Department of Real Estate
DSC - Division of Soil Conservation
DWR - Department of Water Resources
LAO - Local Assessors Office
LFCD- Local Flood Control District
LFD - Local Fire District
MTC - Metropolitan Transit Commission
PUC - Public Utilities Commission
TA - Transportation Agency
WQCB- Water Quality Control Board

ABBREVIATIONS OF FEDERAL AGENCIES WHICH MAY HAVE AUTHORITY, EXPERTISE OR
SPECIAL INTEREST IN REVIEWING IMPACT STATEMENTS (NOT A DEFINITIVE LISTING)

ARS - Agricultural Research Service, Department of Agriculture
BM - Bureau of Mines
BOR - Bureau of Outdoor Recreation
CE - Corps of Engineers
CHP - Council on Historic Preservation
CG - Coast Guard
DA - Department of Agriculture
EDA - Economic Development Administration
EPA - Environmental Protection Agency
FAA - Federal Aviation Administration
FHWA- Federal Highway Administration
FPC - Federal Power Commission
HEW - Health, Education and Welfare
HUD - Housing and Urban Development
OEO - Office of Economic Opportunity
NPS - National Parks Service
SBA - Small Business Administration
SCS - Soil Conservation Service
UMTA- Urban Mass Transit Administration
USGS- Geological Survey

REMARKS: THE FOLLOWING INFORMATION WAS OBTAINED FROM THE RECORDS OF THE
FEDERAL BUREAU OF INVESTIGATION, WASHINGTON, D. C.

1. Name of Person: [illegible]
2. Date of Birth: [illegible]
3. Place of Birth: [illegible]
4. Date of Admission: [illegible]
5. Date of Release: [illegible]
6. Date of Death: [illegible]
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APPENDIX F

SAN FRANCISCO-BAY AREA ENVIRONMENTAL INTEREST GROUPS

Selection includes:

Groups whose organization and primary commitment is based on an environmental issue;

Groups not directly organized on environmental issue(s) but who consistently include environmental issues within their area of commitment;

Groups located (either totally local groups or branches of national and state organizations) within the nine-county San Francisco-Bay Area.

American Institute of Architects
American Institute of Planners
American Society of Landscape Architects
Air Conservation Committee
Animal Protection Institute of America
Associated Sportsmen of California
Audobon Canyon Ranch

Bay Area Council
Bay Area Institute
Berkeley Ecology Center

California Academy of Sciences
California Anti-Litter League
California Automobile Association
California Coastal Alliance
California Heritage Council
California Native Plant Society
California Roadside Council
California Tomorrow
California Trout
California Wildlife Federation
Californians For Environmental Quality
Clean Air Coordinating Committee (Livermore)
Citizens Against Air Pollution Inc.
Citizens Alliance To Save San Francisco Bay
Californians Organized to Acquire Access to State Tidelands (COAAST)
Committee for Clean Air Now (Palo Alto)
Committee for Green Foothills
Committee for Two Million
Common Cause
Conservation Coordinators

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Conservation Foundation
Conservation Law Society
Consumers Cooperative Societies
Contra Costa Parks Council
Contra Costa Shoreline Park Committee

Duck Hunters Association of California
Ducks Unlimited

Ecology Action Educational Institute
Environmental Center (Sonoma)
Environmental Defense Fund
Environmental Law Society
Environmental Workshop

Friends of the Earth

Headlands Inc. (Marin)

International Union for the Conservation of Nature and Natural Resources
Isaac Walton League

Jenner Coastside Coalition

League of American Wheelmen
League of Conservation Voters
League of Women Voters
Legal Committee to Stop the California Water Plan

Marin Conservation League
Marin Ecology Center

Napans Opposing Wastelands (NOW)
National Audubon Society
National Parks and Conservation Organization
National Trust for Historic Preservation
Natural Resources Defense Council
Nature Conservancy
Northern California Committee for Environmental Information

Oakland Citizens Committee for Urban Renewal
Oceanic Society
Orinda Association

Peninsula Conservation Center
People for a Golden Gate National Recreation Area
People for Open Space
Planning and Conservation League
Point Pinole Committee

Regional Parks Association

San Francisco Beautiful
San Francisco Bicycle Coalition
San Francisco Ecology Center
Save San Francisco Bay Association
Save the Redwoods League
Scenic Roads Association
Sonoma County Organization for a Planned Environment (SCOPE)
Sempervirens Fund
Sierra Club (and Regional Chapters)
Soil Conservation Society of America
South San Francisco Baylands Planning, Conservation and National
Wildlife Refuge Committee
South Alameda County Ecology Center
Sport Fishing Institute
San Francisco Planning and Urban Renewal (SPUR)
Stop Smog Committee
Suisun Soil Conservation District

West Contra Costa Conservation League
Wilderness Society

United for Life
United New Conservationists

Zero Population Growth

APPENDIX GPROCEDURES FOR ENVIRONMENTAL
IMPACT STATEMENT REVIEW**FUNCTIONAL ROLE****I. Clearinghouse Notification**

To provide affected agencies and organizations with topical or geographical jurisdiction, expertise or established interest with adequate opportunity to review and comment on impact statements, negative declarations, and environmental reports, pursuant to the National Environmental Policy Act of 1969, the California Environmental Quality Act of 1970, the guidelines of the Federal Council on Environmental Quality, and the California Resources Agency.

II. Service

1. To provide information to applicants, commentators and grantor agencies regarding environmental review procedures utilized by the Metropolitan Clearinghouse, and local, regional, state and Federal agencies.
2. To aid applicants in the preparation of environmental statements including:
 - a. Whether the action proposed requires an environmental impact statement.
 - b. Identification of the potential geographical and topical impacts that should be considered for a project type and relating these impacts to affected agencies to be consulted.
 - c. What would constitute a sufficient description of the impacts identified.

TASKS

1. Development of check lists and maps that relate to locations and potential impacts on environmental and social conditions to affected or interested agencies or interested agencies and publics. (See Appendices A, B, & D of the report).
2. Formulation of procedures to ensure that comments generated by review are made available to applicants and grantor agencies. (See discussion Section III of the report).
1. Cataloging of current environmental procedures. Maintaining current information on guidelines issued by the Federal Council on Environmental Quality, the State Office of Planning and Research, other state and Federal Agencies.
2. Preparation of checklists according to project type, specifying all the potential impacts a project may generate (prototypes of such checklists have been developed for housing and highways. Additional checklists should be prepared for:
 - a. Wastewater treatment
 - b. Water supply
 - c. Airports
 - d. Channelization-Flood Control
 - e. Port development - Navigational Channels).
- 2A. Relate specific impacts to agencies with geographical or topical jurisdiction, expertise or interest.
- 2B. Alert applicants to environmental or social condition changes considered significant by reviewing agencies.

FUNCTIONAL ROLE

3. Inform the preparer of an impact statement of agencies or organizations that possess special expertise or information to assist in evaluation of impacts that have been identified (to include university systems, private industry, and private organizations).

TASKS

3. Development of checklists and maps that relate the location and potential impacts on environmental and social conditions to affected or interested agencies and publics.

III. ABAG Review

1. To determine whether impacts of a project are of regional or local significance.
2. For those projects of local significance, to assess adequacy of impact statements (e.g., whether all impacts have been identified, mitigating actions have been considered, alternatives proposed), and to relate projects to larger programs and plans or surrounding projects (cumulative impact).
3. For those projects of regional significance:
 - a. Evaluation of impacts identified in terms of conflict-compliance with regional planning objectives.
 - b. Assess adequacy of impact statements and relate project to larger programs and plans or surrounding projects (See 2).

1. Development of criteria to enable determination of the scope of impacts.
2. Relate impacts identified in project-type checklists to regional plans, programs and policies.

IV. Monitor

1. To evaluate sufficiency of regulations, procedures and policies utilized by agencies empowered to enforce environmental review regulations; comment on future legislation, guidelines.
2. To indicate gaps in planning policies and programs and areas in which insufficient research resources exist.
3. To delineate and place priority on future planning tasks and programs for the Association to undertake or recommend that they be undertaken by other agencies.

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